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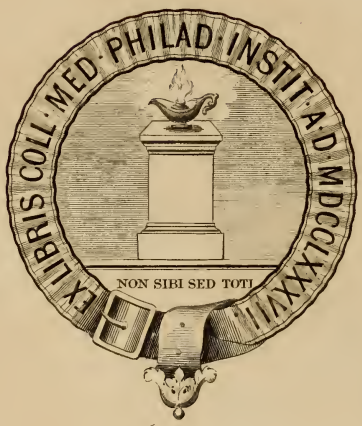


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# CHICAGO MEDICAL

# Journal and Examiner.

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**DANIEL R. BROWER, M.D.**

VOLUME XL,

JANUARY TO JUNE.

CHICAGO MEDICAL PRESS ASSOCIATION.
AUG. 2D
1875.

CHICAGO:

CHICAGO MEDICAL PRESS ASSOCIATION.

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THE

CHICAGO MEDICAL

# JOURNAL & EXAMINER.

VOL. XL.—JANUARY, 1880.—NO. 1.

[ n these 'pages dimension and weight are expressed in terms of the Metric System, and temperature in degrees of the Centigrade Scale.]

## Original Lectures.

### ARTICLE I.

### A CLINICAL LECTURE UPON THE OPERATION FOR INVERSION OF THE LOWER EYELID. By F. C. HOTZ, M.D. Delivered at the Illinois Charitable Eye and Ear Infirmary, November 13, 1879.

GENTLEMEN: In comparing the right and left eye of this patient, you will notice a remarkable difference in the appearance of the lower eyelids. While the left lower eyelid appears normal in every way, the right one seems to be reduced to an unsightly thick piece of integument. You cannot dectect any eyelashes, you cannot see anything like the free edge of the lid. It looks as if the whole lid had been destroyed, and the external integument were drawn inward by the cicatrization and directly united with the conjunctiva. But now let me press slightly upon this rounded border of the skin, and you will perceive a great transformation; as if I had touched a secret spring, the lid border together with the eyelashes suddenly turn up from behind the skin; and now the right lower eyelid looks just like

its partner, with the cilia well developed and grown in a regular row from a smooth, clean-cut edge. If I discontinue the pressure upon the skin, the lid border with its eyelashes slowly sinks down again, to disappear behind the skin which rolls in after it.

We have here a typical case of a complete inversion of the lower lid. It is rolled in upon itself in such manner that its free edge and eyelashes are turned down toward, and buried in, the lower cul-de-sac of the conjunctiva. The patient informed me that he had been afflicted with granular conjunctivitis for twenty years, and that the right lower lid had been inverted for at least six or seven years. I mention these data, because the chronicity of the affection, in connection with the readiness with which the lid turns in again after it has been everted, and the absence of spasms of the orbicular muscle—these facts must lead us to suppose that organic changes have taken place in the tissues which compose this lower lid, of such a character that the inversion is a permanent condition. It is, therefore, beyond the influence of medicinal application; nor would it be materially affected by our curing of the granular conjunctivitis, if such a thing were possible under the circumstances. But as long as the inverted eyelashes continue their mechanical irritation of the conjunctiva, so long any treatment of the conjunctival disease will meet with little or no success. The first step, therefore, in dealing with a case like this, is to remedy the entropion, because thereby we remove one of the greatest obstacles to a successful treatment of the granular conjunctivitis.

The common practice in cases of chronic, confirmed inversion of the lower eyelid, which require operative treatment, is either to excise one transverse fold or several longitudinal folds of the integument of the lid, or to insert through the basis of a transverse fold two or three ligatures. The wounds created by the removal of skin are allowed to heal by granulation; and the ligatures, being drawn as tightly as possible, remain in place until they are eliminated by suppuration. Thus, either by scissors or by ligatures, wounds are inflicted upon the skin of the lower lid, which are repaired by granulation tissue. Cicatricial tissue, resulting from such wounds, always shrinks a good deal, drawing with an irresistible force the surrounding tissues toward the center of

the scar, or, if one end of the scar is attached to some immovable substance, toward this fixed point. In the case of the lower lid, the scars established by the operations mentioned are connected, above with the free edge of the lid, and below with the integument of the cheek. By the cicatricial contraction, therefore, these two parts are drawn toward each other, and, if the integument of the cheek be firm and comparatively unyielding, the lid border, on account of its great mobility, becomes principally affected by the cicatricial tension. From its normal position it would be drawn away so as to become everted; but if inverted it may perhaps be turned just enough to recover its normal position.

You will have perceived, gentlemen, that the theory underlying all these operations, is to employ the contracture of cicatricial tissues as the power with which the reposition of the inverted eyelid shall be accomplished. This end, however, is quite often not attained, because, as I think, there are two very serious defects in the plan upon which these operations are executed.

1. *The effect of the operation depends upon the contraction of cicatricial tissues.* That is to say, we have to rely upon one unknown quantity, an x, as mathematicians call it. For we cannot know how much or how little the scar of a granulating wound of a certain length or width may shrink; we have no influence upon this shrinkage: we can neither increase nor arrest it. We entrust, therefore, the ultimate result of our operation to an agency which is entirely beyond our control; and consequently we must not be surprised at all if our calculation, based upon one x, shows up a different result from that which we bargained for.

2. *The result of these operations is too dependent upon the state of the integument of the cheek.* This is a worse fault than the other, because it makes, in most cases, a permanent success illusory. Let us review the mechanical effect of the operation: By excision or ligation, the skin of the lower lid is shortened in the longitudinal direction for the purpose of making the requisite traction upon the edge of the inverted eyelid to turn it back to its proper position. But, in order to make this traction

effectively and successfully, the opposite end of the contracting cicatricial band must be firmly and immovably fixed; if it is not, the traction will operate upon both ends, and the greater degree of mobility alone will decide which will be moved the most. If the integument of the cheek, to which the lower end of the cicatricial band is attached, is solid and firm, it forms a pretty good basis for the traction. But let that integument be very flaccid, as we find it in aged people; let at the same time the lid be held inverted by extensive atrophic shrinkage of the conjunctiva, and the traction of the cicatricial band will draw the flaccid and movable skin of the cheek upward rather than the lid border downward. And this is just the condition which obtains in many cases of inversion of the lower lid. For this deformity occurs particularly often among old people, on account of the great relaxation of their integument.

To overcome, under these circumstances, an entropion of the lower lid by excision or ligation is a very difficult task; to secure a permanent success, almost an impossibility. I remember very well yet an old woman who was an inmate of the infirmary two years ago. Her lower lids were inverted, though not nearly so badly as in the case before you; but her skin was exceedingly thin and flabby. I excised a transverse fold of skin, its perpendicular diameter measuring $2\frac{1}{2}$ cm., with an immediate success; but two months later the lids were inverted again. I removed another piece of skin of equal dimensions; and in the course of a few months the effect of the second operation also was reduced to a mere shadow. The enormous shortening of the skin had no permanent effect upon the lid border because the relaxed skin evidently was more easily moved by the shrinking scars than the edge of the lid.*

I admit the instance just related belonged to the bad cases of

* At the following clinique, Dr. Hotz exhibited a case of recurrent inversion of the lower lid to substantiate the above remarks. The patient, 60 years old, had granular conjunctivitis and a marked degree of entropion of both lower lids; the skin of his cheeks was very sallow, exceedingly flaccid and wrinkled. Five or six millimeters below the free edge of each lower lid there was a callous transverse scar running across the whole width of the lid. This scar was the result of an excision of skin for the cure of the entropion, performed five years ago. So lax was the skin that if a piece of skin, 2 cm. in vertical diameter, was taken up in a transverse fold, this shortening barely sufficed to evert the lid; while it was easily done without any sacrifice of integument by the operation described below.

entropion, and that in less difficult cases the same operation has often been performed with unquestionable success. But to me bad cases are always the most interesting because the most instructive. They are the only cases by which the merits of an operation can be fairly tested, because if there be any fault in the conception or execution of an operative method, they will bring it out in strong relief. If an operation cures mild degrees of inversion of the lower lid, but fails with more pronounced cases, I come to the conclusion that there is something wrong in the principle of that operation. And I believe it is not difficult to show that the frequent failures of the operations for entropion are undoubtedly due to the wrong or disadvantageous application of the principle of traction.

If one man wishes to pull another man towards himself, he tries above all to secure a firm foothold for himself to prevent his being drawn away and thereby to have the whole effort of his traction act upon his opponent. In this, as in every other instance where men wish to obtain the full effect of mechanical power, like traction, we observe the same plan is pursued in applying the power; it is always given a firm, immovable basis to issue from.

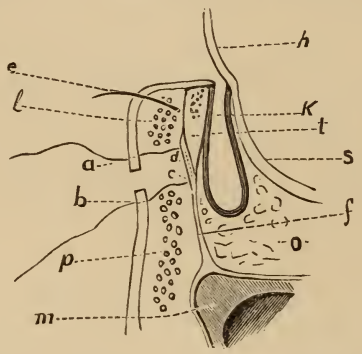
Now, as the whole result of the operation for inverted eyelids depends upon the proper action of the mechanical power of traction, is it not singular that surgeons did not adopt the best way of using mechanical power with the greatest advantage? Is it not strange that instead of securing a firm, anyielding basis for the lower end of the cicatrix, they committed the great blunder of affixing both ends of the contracting cicatrix to mobile structures? The natural and necessary consequence was that the traction worked both ways; its impulse was perceptible upon the integument of the cheek as well as upon the edge of the lid and the greater mobility of either alone determined which would be displaced the most.

This is a very unsatisfactory way of doing things. The effect of an operation upon so important an organ as the eye, should not be left to the influence of casual circumstances over which we have no control. If we employ the mechanical principle of traction for the cure of inversion of the lower lid, let us apply it

in such a way that we can determine its effect with an almost mathematical accuracy. *This is possible only if we obtain a fixed immovable point toward which the skin of the lid can be drawn and to which it can be so fastened that a permanent traction is made upon the free border of the lid.*

*Such a point is the lower border of the tarsal cartilage.*

To recall to your mind the necessary anatomical data, let me say that the lower lid is composed of the following layers: external integument; subcutaneous cellular tissue; orbicular muscle; another layer of cellular tissue; tarsal cartilage or tarsus; and conjunctiva. To the lower border of the tarsus (*t*) is attached a strong fascia (*f*), the fascia tarso-orbitalis, which, extending from the tarsal cartilage to the infra-orbital margin (*m*) of the maxil-




lary bone closes the lower part of the orbital cavity (*o*) against the pars orbitalis (*p*) of the orbicular muscle. At the osseous margin this fascia passes over into the periosteum; at the tarsus it is blended with its lower border and also spread upon the lower third of its anterior surface. Owing to this fascial connection, the lower border of the tarsus can firmly resist any power which tends to move it upward, because through the fascia this upward movement is impeded by the infra-orbital margin. For this reason the lower border of the tarsus itself is an immovable point best suited as a basis for the traction which is to stretch the skin of the

---

The above diagram represents a vertical section of the lower lid and its surroundings; *k*, conjunctiva of lid; *t*, tarsal cartilage; *e*, eyelash; *l*, lid portion of the orbicular muscle; *p*, pars orbitalis of same muscle; *f*, fascia tarso-orbitalis; *c*, *d*, expansion of fascia upon lower third of tarsus; *m*, infra-orbital margin; *o*, orbital tissue; *s*, sclerotic; *h*, cornea; *a d c b*, course of the suture.

lower eyelid and to draw its free edge downward and outward in case of inversion.

This firm basis gained, a very slight traction suffices for the reposition of the inverted eyelid. I will demonstrate it on the patient before you. The lower border of the tarsus of the lower lid describes a slightly curved line with its convexity looking downwards; its place is indicated by a fine, slightly curved furrow more or less well marked in the skin, and from 4 to 6 m. m. below the edge of the lid. Now, I put this silver probe in the furrow and with the slightest possible pressure I push the skin directly downwards and backwards. The movement of the skin thus produced is scarcely perceptible, and yet it is sufficient to turn the lid border. It has now a normal position.

That you may fully realize the importance of this experiment, let me show you, by way of contrast, what a large piece of skin would have to be removed to obtain the same result. I must take up a transverse fold of as large a piece of integument as the open prongs of these forceps can grasp, in order to turn the inverted lid border. All this skin would have to be excised, were we to follow the common practice in the treatment of this case. But over one year ago I came to the conclusion that the excision of skin was an unnecessary mutilation; that our object could be accomplished with greater nicety and certainty without shortening the skin. I have since departed from the high road of common practice, and the larger my experience grew, the better I was pleased with the new method of operating for inversion of the lids. In the *Archives of Ophthalmology*, Vol. viii, No. 2, you will find a description of this operation for the entropion of the upper lid. And I shall presently show you how the same operation is performed upon the lower lid.

Four or six millimeters below the lid border (just along that fine furrow I referred to before), I make a transverse incision, which severs the skin of the lid from the integument of the cheek. An assistant then draws with a forceps the upper border of the wound upwards, while I am drawing the lower border downwards. Thus the wound is widely opened and the orbicular muscle fully exposed. A few horizontal strokes of the scalpel near the upper border of the wound open the muscular layer

and submuscular cellular tissue and expose the lower border of the tarsus to its whole extent. The tarsus is easily recognized by its yellowish color; but if you are in doubt, just feel with your finger to detect the firm edge which differs quite perceptibly from the soft elastic resistance of the fascia below.

The bundles of muscular fibers which covered the lower third of the tarsus, must now be removed so that the skin and tarsus can be brought in direct apposition. As a rule, I find, after the incision of the orbicularis, no muscular fibers upon the surface of the tarsus; but find them attached to, and drawn up with, the tarsal skin. With a pair of fine forceps I seize the muscular fibers near the upper border (*a*) of the skin and excise a strip, about 3 m. m. in width, along the whole length of the lid from canthus to canthus. This done, the wound is ready for the final and most important step of the operation, the application of the sutures. The curved needle armed with fine black silk * is thrust through the skin of the lid, a few m. m. from the border of the incision (at *a*); then it pierces the fascial expansion upon the lower third of the tarsus (at *d*) and is carried downward along the tarsus until its point emerges again (at *c*) from the fascia a little below the tarsal border; and finally it is passed through the lower border of the wound (at *b*), great care being taken to exclude all muscular fibers from the loop of the thread. The suture (*a*, *d*, *c*, *b*,) thus inserted, includes only the two cutaneous borders and a piece (*d c*) of the fascia, and when it is tied, it brings the cutaneous borders together and also draws them down to the tarsus.

Three sutures of this kind usually are sufficient for uniting the skin with the whole length of the tarsal border. During the first twenty-four hours after the operation the eye-lids are kept covered with cold water compresses; they relieve the smarting sensation and probably also mitigate the inflammatory reaction. On the second day the lids are found slightly swollen and tender; this swelling and tenderness are a little greater on the third day, but subside quickly after the removal of the stitches. As a rule the sutures are taken out on the third day.

*I use black thread for the great advantage it has over light colored silk, in the easy removal of the sutures.

And now, while our patient is being etherized, I invite you to examine a few eye-lids upon which this operation has been performed sometime ago. In none of these cases has the skin been mutilated by excision or ligation; in every one the operation has been successful. And I wish to turn your attention particularly to the firm union which is established between the skin and the lower border of the tarsus at the line of the operation, marked out by this linear transverse scar. The firmness of this union and the important rôle that it plays, is manifested when you push the integument of the cheek upwards. You may do so as much as you please, and you notice this has no influence upon the position of the lid border. It does not turn in, no matter how much you relax the tissues of the cheek, which it would do very readily, if its eversion had been brought about by the contraction of a cutaneous cicatrix.

In the beginning of this lecture I mentioned, as the greatest defect of the old operations, that their result was too dependent upon the state of the integument of the cheek, and that in this dependence I recognize a fruitful source of the recurrence of entropion. This new method has made the result of the operation wholly independent of the condition of the surrounding tissues; and this independence is a sure guarantee that the pains of the surgeon are not expended for an ephemeral result, but that his labor will be rewarded by a permanent success.

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The students of the Woman's Medical College and of the Rush Medical College had the pleasure of witnessing, on Monday evening. December 22, an exhibition of a beautiful series of micro-photographs prepared and kindly loaned by Dr. Walter Kempster, the efficient Superintendent of the Hospital for the Insane near Oshkosh, Wisconsin. These excellent pictures were prepared by Dr. Kempster to illustrate his article published in the proceedings of the International Medical Association in 1876. They demonstrate conclusively that the doctor's capacity extends beyond the duties of a medical superintendent, and place him in the front rank of American histologists.

# Original Communications.

## ARTICLE II.

SPONTANEOUS OSTEO-MYELITIS OF THE LONG BONES. By N. SENN, M. D., of Milwaukee, Chairman of Committee on Surgery. Read before the Rock River Medical Society of Wisconsin, at its meetiing held in West Bend, Nov. 8, 1879, and published by request of the Society.

Since the appointment of your committee, no great innovations or improvements have been made in the department of medicine assigned to your committee, hence I ask your indulgence if in the selection of the subject for my report, I have disregarded the letter of our by-laws. I shall invite your attention to a consideration of "Spontaneous Osteo-myelitis of the Long Bones." While traumatic osteo-myelitis was carefully studied by our surgeons during the late war of the rebellion, the spontaneous variety has attracted but little attention, and is entirely ignored by most of our text-books. As this affection is quite prevalent in this section of country, and is at present but imperfectly understood by the majority of the profession, I trust a discussion of this topic on this occasion may prove to be interesting and profitable to us all.

*Definition.*—Spontaneous osteo-myelitis is an infectious inflammation of the marrow of bone. All inflammatory diseases of the bones involve, to a greater or less extent, the medullary tissue; practically the surgeon understands by this term an affection where the inflammatory process begins primarily in this substance by localization of the infectious poison.

*Synonyms.*—A great variety of terms have been applied to this disease at different times and by different authorities, as,

endostitis, medullitis, ostitis, ostitis acutissima, osteo-myelitis diffusa, diffuse suppuration of bone, periostitis rheumatica, (diffusa, acutissima,) osteo-phlebitis, typhus des os, typhus des membres, pseudo-rheumatic inflammation of joints and bones. These different terms have served to convey the ideas entertained by different authors in regard to the location, nature or ætiology of this affection. Although every bone in the body containing marrow may become the seat of osteo-myelitis, the following remarks will apply to the disease only as it occurs in the long bones.

*History.*—Although this affection must have had an existence almost as early as disease itself, we find no mention of it until 1705, when J. L. Petit described an affection of the bones which was identical with what we now understand by osteo-myelitis. Similar allusions have been made to it by Gooch, Pott, Cheselden, Hey and Abernethy, some of their descriptions being sufficiently accurate to enable us to recognize the character of the lesion. The traumatic form was studied with more care and assiduity than the spontaneous variety. In 1831, M. Renaud published a paper "On Inflammation of the Medullary Tissue of the Long Bones," in which he gives a report of five cases occurring after amputation, all having terminated fatally. Cruveilhier alludes to this affection when he says, "The phlebitis of the bones is one of the most frequent causes of visceral abscesses following wounds or surgical operations in which the bones are involved. Roux credits Nélaton with having devised the term osteo-myelitis in 1834, and having published a brief account of it in 1844. In 1849, Mr. Stanley, in his excellent work "On Diseases of the Bones," gave an accurate description of the spontaneous variety under the title "Suppuration in Bone." In 1855, Chessaignac applied the term osteo-myelitis for the first time to the spontaneous form, reporting four cases. Traumatic osteo-myelitis has always been of frequent occurrence in military practice and in infected and badly ventilated hospitals. Among the military surgeons who have advanced our knowledge of this form of the affection, Vallette, M. Roux, Jules Roux, Larrey, Pirogoff, Lidell and Allen deserve prominent mention. In 1865, W. Roser gave a complete resumé in thirty propositions, of what was then known concerning the spontaneous variety. While the

traumatic form was generally admitted to be of an infectious origin, the spontaneous type was considered purely inflammatory until Durcke ascertained its infectious character. Demme, Volkmann, Schede and Hueter have added valuable contributions to our knowledge of this disease by their pathological investigations and clinical observations. Rosenbach and Kocher, by numerous experiments on animals, have established many facts corroborating the theory advanced by Durcke. From the history of this disease, it will be seen that our knowledge pertaining to it is of comparatively recent date. Before pathological anatomy established the fact that the marrow is always the primary seat of inflammation, this affection was confounded with ostitis or periostitis. Before osteo-myelitis was recognized as a distinct affection, ostitis was regarded as a frequent disease of bone. At present osteo-myelitis must be considered the most frequent of all inflammatory diseases of bone, while ostitis is of very rare occurrence.

In opposition to the generally received opinion that the disease originates primarily in the medullary tissue, are the views of M. Gosselin and M. Guérin who attribute the suppuration in the marrow to an antecedent subperiosteal suppuration, occurring especially where the matter has not been evacuated by an early incision. They regard osteo-myelitis as a lesion secondary to inflammation of the substance of the bone proper, or its fibrous envelope, and seek to prevent it by free and early incisions, even to the extent of penetrating into the interior of the bone. M. Panas has found the myeloid tissue not only in the central canal of the long bones, but likewise in the deeper layer of the periosteum and the Haversian canals; it is therefore not necessary for the disease to originate in the central medullary canal, but it may, and very frequently does, commence at any point where myeloid cells are found. This view is substantiated by the clinical fact that this disease affects with greater frequency individuals during a time in their lives when the medullary tissues exist in greatest abundance, and by its manifesting a strong predilection for those portions of the bones containing the greater amount of marrow. From the peculiar relation of the structures it is easy to understand that inflammation of bone or periosteum will affect the

medullary substance by contiguity, but the surgeon applies the term osteo-myelitis exclusively to those cases where the marrow is the primary focus of the inflammatory process.

*Structure and Function of Marrow.*—Periosteum, osseous tissues proper, and medullary tissue are anatomically distinct, but in a physiological sense combined, being supplied by the same nerves and blood vessels. Any one or more of these substances may disappear during pathological changes, and may, by metamorphosis of their histological elements, be converted into each other. A similar metamorphosis of those tissues constitutes a well established fact in physiology. By sympathy and contiguity a pathological or physiological process in one structure is very apt to involve others to a greater or less extent. The appearance and structure of marrow varies according to age and locality in which it may be found. In the fœtus and in the cancellated structure of bone it is red and contains only a trace of fat, while in the central medullary cavity of the long bones in the adult, it presents a yellowish color, and is composed almost entirely of fat. The difference in color depends on the presence or absence of fat. The red or embryonic marrow contains about 86 per cent. of myeloid cells. These are round simple embryonal elements measuring from 0.0129 to 0.0257 m. m. and containing one or two nuclei and granular matter. Some of these cells assume a spindle-shaped form and are transformed into connective tissue cells, others are changed into fat cells, while the rest preserve their lymphoid character. An important physiological function has been lately assigned to these bodies by Neumann and Bizzozero, viz.: the production of red and white blood globules which enter the circulation by immigration, a process opposite to the one described by Cohnheim. Neumann and Eales have observed a pecularity of the capillaries in the medullary tissue, their caliber being four times greater than that of the arterial branches that immediately supply them. This dilatation of the capillaries diminishes the rapidity of the blood current and favors the accumulation of the white globules of the blood and may possibly undergo here a transition from white to red corpuscles. The process of hæmato-genesis in the medulla may therefore be intra-vascular and extra-vascular, in the former case depending on a

metamorphosis of the white corpuscles, in the latter instance on a transformation of myeloid cells into blood corpuscles. To explain the possibility of the red corpuscles entering the capillary vessels from without, Dr. H. C. Hand, of St. Paul, suggests that during the formation of lacunæ the vascular walls may suffer a slight loss of continuity, affording thus an ingress to these bodies. The blood-producing function of the myeloid tissue has also received attention in this country through the investigations of Dr. H. C. Hand, Prof. H. C. Wood and Prof. Wm. Pepper, and in the light of experiment, microscopical examination and clinical observation, must now be considered an established fact in physiology.

The yellow marrow found in the central canal of long bones is composed of 96 per cent. of fat. The fat vesicles are lodged in a nidus of delicate fibers of connective tissue, interlacing freely in every direction, and becoming more abundant towards the outer portions of the marrow. In a healthy bone there is no such thing as an endosteum; this had only an existence in the imagination of the older anatomists. Bundles of connective tissue fibers are arranged longitudinally with the bone, but no complete membrane is formed, and the medulla is in direct contact with the bone tissue.

The principal source of blood-supply is the nutrient artery, branches of which form a delicate network, with meshes of polygonal shape. Free anastomosis exists between the vessels in the central canal and the reticulated tissue.

The nerves are derived in greater part from the cerebro-spinal system, and enter the bone with the vessels, through the foramina nutritia and the Haversian canals.

The presence of lymphatics has been demonstrated by fine injections by Bichât, in the substance of bone, if not in the central medulla. During early fœtal life, marrow does not exist; it is formed by transformation of osseous into medullary tissue, so that during the development of bone, not only bone but medullary tissue is formed. The most important anatomical properties to be remembered in connection with our subject are: the softness, vascularity and exuberance of the cellular elements of the medulla, as well as the unyielding character of the walls

surrounding it, all important factors in the production of inflammation and infection.

*Ætiology.*—Infection is the essential cause of traumatic, as well as idiopathic osteo-myelitis, the difference consisting in the manner in which infection is produced. In the traumatic form the infecting element is brought in direct contact with the marrow through a wound after compound fracture, amputation or resection; in the spontaneous form the poison enters the circulation, and is carried with the blood to the medulla, where it becomes localized.

The influence in preventing traumatic osteo-myelitis in contaminated hospitals has been strikingly illustrated in the general hospital in Munich. Before Lister's treatment of wounds was adopted, almost every patient who was brought to the hospital with a compound fracture, or had submitted to an amputation or resection, became affected with this disease, and the majority of them died of pyæmia. Since the introduction of the antiseptic treatment, this dreadful scourge has been unknown in that institution. The spontaneous variety is met with in a large proportion of cases in individuals under 25 years of age, before ossification of the epiphyseal cartilage has taken place. The period of growth and development of bone constitutes the most important predisposing cause. Perhaps 90 per cent. of the whole number attacked are between five and fifteen years of age. I have seen at least three cases where the patients were more than thirty years of age.

CASE I. *Osteo-myelitis of femur, with secondary suppurative synovitis of knee-joint; pyœmia; death.*—Joseph S.. aged 38, a laborer by occupation, in previous good health, received a slight injury of the lower part of his right thigh by a fall during the month of September, 1872. The injury was soon forgotten, but in a few days the patient experienced severe pain in the lower part of the thigh, attended by febrile disturbances, followed by a diffuse swelling. Three weeks from the beginning of the attack, the knee-joint became swollen, and the general symptoms assumed a more serious aspect. I saw him about five weeks from the time the first symptoms had developed themselves, and found him very much emaciated and suffering from hectic fever. Several open-

ings existed over and above the knee-joint, discharging profusely their sanious pus; a probe could be passed readily into the joint and into the interior of the femur, coming everywhere in contact with denuded bone. Amputation of the thigh was advised as the only means to save the patient's life, but was not acceded to, and the patient died two weeks subsequently, with symptoms of pyæmia. Cough, rapid breathing, chills and a jaundiced hue of the conjunctiva and skin made their appearance a few days before the fatal termination.

In this case the morbid process commenced undoubtedly in the lower and interior part of the femur. After suppuration had taken place, pus infiltrated the spongy portion of the condyles, and invaded the knee-joint through a perforation in the articular cartilage of the joint, exciting there a suppurative synovitis.

An early incision, with perforation of the compact layer, affording an outlet for the pus, might have been the means of saving the patient's life and limb.

CASE II. *Osteo-myelitis of lower extremity of tibia; necrosis; operation; recovery.*—August Musach, aged 35, laborer, with a scrofulous hereditary taint, came under observation in the fall of 1872. When he was about 12 years of age he received an injury to the lower portion of the right tibia, acute inflammation followed, resulting in suppuration and spontaneous evacuation above the internal malleolus. The opening discharged pus for a long time, when it finally closed, leaving the bone enlarged but causing no further inconvience. About a year ago he injured the same place with the blunt edge of an ax. Soon after the accident the part became very painful and in a few days swollen; in about five weeks a physician opened an abscess over the minor and lower aspect of the tibia. The pain and fever subsided but a thin and extremely offensive pus continued to escape until I saw him. At that time several openings existed above the internal malleolus; the lower end of the tibia was enlarged to more than twice its normal size. A probe passed readily through one of the cloacæ and came in contact with loose, dead bone. The soft tissues were very much indurated. The patient appeared to be well nourished but very anæmic. He was etherized and the bone exposed by an incision. The cloaca was

enlarged with the trephine and chisel and a sequestrum of cancellated bone infiltrated with fœtid pus was removed. The involucrum was fully an inch in thickness and almost as dense as ivory. The abscess cavity was lined throughout with large, whitish-grey granulations; only a very thin shell of bone seemed to separate the abscess from the anklejoint. The patient made a slow but permanent recovery. In this case the disease during childhood affected the lower epiphyseal cartilage and the spongy tissue on both sides of it and its results undoubtedly furnished a predisposing element for the second attack.

Case III. *Suppurative synovitis of knee-joint; osteo-myelitis of femur; death.*—John Schulz, aged 32, laborer, with a hereditary tubercular taint suffered during his childhood from a synovitis of the left knee-joint, which terminated in false anchylosis and partial dislocation of tibia without suppuration. While at work during the spring of 1878 he injured the affected knee by a fall. In a few days severe pain and swelling supervened, accompanied by fever. A number of weeks afterwards an abscess appeared on the inner side of the knee, which was opened by a physician. When I saw him, about eight months from the commencement of the disease, I found the patient very much emaciated, an opening on the inner side of the knee discharged freely a sanious pus and permitted the passage of a probe into the joint when denuded bone was distinctly felt. The joint was swollen, tender and extremely painful on the slightest attempt to move it. I proposed to make a free incision on both sides of the joint, and, with a sharp spoon scrape away the carious articular ends under antiseptic precautions. I failed, however, to obtain the consent of the patient and his friends, and lost track of the case until about four months afterward, when I was again called to see him. I then learned that the whole thigh became swollen and extremely painful about three weeks previous to my visit. Several openings existed over the inner and outer aspect of the thigh, through which a probe could be passed down to the femur, which was found denuded of periosteum. The patient was suffering from chills and presented a jaundiced appearance. The spleen was considerably enlarged and over the posterior and inferior part of the chest numerous râles could be heard. As internal metastatic

deposits had evidently taken place, only a palliative treatment was adopted. The patient succumbed rapidly to the general invasion and in a few days death terminated his sufferings. In this case osteo-myelitis occurred as a secondary affection following destructive suppurative synovitis. The disease in the joint had destroyed the articular cartilage, and, from imperfect drainage, the pus in the joint infiltrated the reticulated structure of the condyles of the femur, causing finally a diffuse and fatal osteo-myelitis. It is evident that the establishment of free drainage, combined perhaps with *évidement* under antiseptic precautions, might have prevented the extension of the disease to the femur.

Location and climate appear to exert an influence in the causation of this disease. According to Volkmann it is frequently met with in Berne, Marburg, and Halle, but seldom in Zürich and Berlin. From the great number of patients suffering from necrosis and from the number of recent cases that have come under my observation, I am inclined to believe that this disease is quite prevalent in our section of country, more particularly along the lake shore. The frequent and sudden changes in the temperature, incident to this region, are a fertile cause in the production of internal congestions.

"Mr. Savory reports a case in which the exposure of a limb to sudden extremes of heat and cold by plunging it into ice cold or very warm water, caused acute osteo-myelitis and McNamara, of Westminster Hospital, cites the case of a boy in perfect health who fell through the ice Dec. 20th and on Feb. 15th suffered amputation at the knee-joint in order to prevent further absorption by extension of evident septicæmia. Dissection of the limb showed that the cancellated tissue and medullary canal of the tibia were entirely destroyed and that the outer shell (compact tissue) of the bone was more healthy than any other part; the myelitis being evidently not due to extension of inflammation from the periosteum to the medulla through the Haversian canals, as might naturally be supposed."

I have seen a number of cases where the exciting cause could be clearly traced to a sudden chilling of the cutaneous surface.

CASE IV. *Osteo-myelitis of humerus; necrosis; operation; recovery.*—Henry R., aged 18, farmer, previously in perfect

health, was attacked early in the spring of 1865, with severe pain in the upper portion of his humerus, almost immediately after bathing in cold water. He had over-heated himself by a long and rapid walk before he went into the water. The fever and general disturbance were severe from the beginning. After three days a diffuse swelling took place, extending over the whole arm and part of the forearm. In about three weeks, after the most terrible suffering, an abscess formed and discharged itself near the insertion of the deltoid muscle. Several other openings formed subsequently, through which several small pieces of bone escaped. The movements of the shoulder-joint became impaired and the muscles in its neighborhood became atrophied. At the end of the operation, June, 1871, several cloacæ existed, through which a loose sequestrum could be distinctly felt with a probe. The involucrum was found exceedingly dense and measured over an inch in thickness. The sequestrum was rough on all sides and had evidently a central origin. The primary disease involved the interior of the bone, and had extended from or over the upper epiphyseal cartilage to the middle of the humerus. Judging from the impaired motion in the shoulder-joint, the previous synovitis must have been quite severe. In about four months the wound had entirely healed, and the usefulness of the arm had materially improved.

CASE V. *Osteo-myelitis of tibia and radius; recovery.*—Reinhold Stolz, aged 12 years, a healthy boy, after over-heating himself in a game of ball, rested himself by lying on the cold ground until he became thoroughly chilled. When he came home he complained of a severe pain in his left leg, and the next day he was unable to walk. On my visit at this time (Oct. 30, 1877), his pulse was 140, temperature, 40°. The lower part of the tibia was tender, but no swelling could be detected. The least attempt to move the limb caused intense pain. In a few days a diffuse phlegmonous swelling appeared and an incision gave exit to a considerable quantity of reddish brown fluid, in which free oil globules were found floating on the surface. The tibia was found denuded of periosteum over several inches of its extent. The pain continued after the incision, and the general symptoms assumed a more serious aspect. During the second

week of the disease the lower part of the radius on the right side became swollen and tender; suppuration did not take place; the pain and swelling yielded in a few weeks to the persistent local use of tincture of iodine.

After a few months the general symptoms improved, and when last seen, the patient was able to walk, but the lower end of the tibia was found to be the seat of extensive central necrosis.

Over-heating of the body diminishes its power to resist the deleterious influences of cold. The internal congestion resulting from a sudden abstraction of heat from the cutaneous surface produces a stasis in the capillaries of the medullary tissue which favors the localization of the infectious germs which may exist in the blood. The influence of temperature is further apparent from the fact that, according to Luecke and Schede, the disease seldom occurs during the summer months. My observations would tend to corroborate this assertion. Most of my patients contracted the disease during the months from October to May.

Among the general predisposing causes may be enumerated, the period of youth, the male sex, occupation, a damp and changeable climate, scrofula, syphilis, and the period of convalescence after acute infectious diseases. Crowded school-rooms, badly ventilated sleeping apartments, damp dwelling houses, and other unfavorable hygienic surroundings, are potent agencies to render the system susceptible to infection. Among the local causes may be mentioned fractures, contusions and concussions, but traumatism in every form can only be viewed in the light of exciting causes. No amount of local mechanical, physical or chemical irritation is sufficient to produce the disease independent of the essential cause—infection. Rosenbach has even gone so far as to assert that the infection is one *sui generis*, a specific infection, while Kocher and most of the modern pathologists regard the infection analogous in charater to that producing other forms of inflammation. Both of these observers have made numerous and ingenious experiments on animals to prove the infectious nature of this disease. Rosenbach found that contusions, fractures and crushing of bone, as well as destruction of

marrow by cauterization, artificially produced under antiseptic precautions, were insufficient to produce osteo-myelitis.

In eleven cases of cauterization of the central medulla with a galvano-caustic wire, under the antiseptic treatment; in eight no suppuration took place; in three, where the burning was severe, necrosis occurred; the general symptoms were not severe, and suppuration very slight. In three cases where the marrow was operated upon by electrolysis, the results were negative. Injections of mercury, amalgamate of sodium, caustic potassa and sulphuric acid, directly into the medullary cavity, caused instant death during the operation, from the entrance of the irritants into the veins, but osteo-myelitis failed to be produced in any of them. Injection of a mixture of equal parts of croton oil and fat, previously heated to 100° C., produced intense inflammation of the soft parts, destruction of medulla and complete necrosis of the shaft of the bone. Two drops of pyæmic fluid, injected into the interior of the tibia of a rabbit, caused death in three days. An examination of the bone showed that extensive osteo-myelitis and necrosis had taken place. Rancid butter injected into the medulla excited a severe phlegmonous osteo-myelitis which came near proving fatal. On killing the animal some time afterwards, the entire diaphysis was found necrosed and separated from both epiphyses. In three cases where pus from an osteo-myelitic patient was injected into the medulla, well-marked, typical osteo-myelitis followed. These experiments were made on dogs and rabbits.

From the results of these experiments, Rosenbach concludes that mechanical, physical or chemical irritants applied to the marrow, with the exclusion of infection, cause simply death of its substance and the subsequent removal or absorption of the dead tissues. Injections of infectious matter excite a diffuse, purulent, phlegmonous, septic inflammation, followed in some instances by general infection and death. Osteo-myelitis, traumatic and spontaneous, can only occur after infection has taken place, no matter how severe and extensive the local destruction may have been. In spontaneous cases the infectious material circulates in the blood, and localizes itself in the medulla, where it reproduces itself, causing septic inflammation. Localization of the poison in

many instances is determined by local causes in individuals laboring under general infection.

Luecke assumes that a stagnation in the capillaries of the marrow, from any cause, may arrest the infectious germs at the point of obstruction where they find a fertile soil for their reproduction. Intense infection may lead to a fatal termination without localization. In most cases the poison remains latent or innocuous in the system until some local cause or causes determine its localization.

Kocher, who does not believe in the specific nature of the infection, was unable to produce, artificially, osteo-myelitis in animals by injecting into the marrow pus obtained from patients suffering from this disease. He regards osteo-myelitis, not as a specific infectious disease in the same sense as typhus, scarlatina and diphtheria, but simply infectious in the same sense as every other acute inflammation.

His experiments on dogs, by applying directly to the marrow chemical or mechanical irritants, resulted in ostitis circumscripta hyperplastica; osteo-myelitis did not occur in a single instance, provided infection was prevented. Injections of septic fluids containing bacteria produced the disease promptly. Injections of pure pus, with micrococci, was followed by sclerosis of the bone. Injections of caustic ammonia, and feeding the animal afterwards with decomposed blood, mixed with Pasteur's solution, resulted in osteo-myelitis, with grave constitutional symptoms. He believes also that traumatic influences are insufficient to produce osteo-myelitis without the aid of local or general infection. In external wounds communicating with the marrow, the septic germs in the air are brought in direct contact with the marrow; where no such direct entrance is possible, the septic bacteria enter the circulation through the gastro-intestinal or broncho-pulmonary mucous membrane, and with the blood-current reach the medulla.

Schueller succeeded in producing osteo-myelitis in animals by subcutaneous injections of decomposed blood. Mikulicz has ascertained that the presence of living micro-organisms in the septic fluid is essential for the production of progressive sepsis after injection; only slight reaction took place if the germs were destroyed by the addition of glycerine. S. Hasse found that a

much smaller quantity of osteo-myelitic pus would produce a more intense effect on the same dog if it was allowed to undergo decomposition for six days. When the circulation of the blood in the marrow is impeded, or extravasation has taken place, the septic organisms circulating in the blood are readily arrested, and find there a fertile soil for their development and reproduction.

Klebs, Recklinghausen and Langhaus have found micro-organisms in osteo-myelitic patients, in the inflamed medulla, in the secondary deposits, the thrombi and fat emboli, in the fibrous exudations on serous membranes, and in the lymphatic vessels. In not rare instances, according to Billroth, diplo-cocci and strepto-cocci were also found. In some cases the micrococci were so numerous as to constitute the principal bulk of the products of inflammation, imparting to the fluid a reddish-brown, emulsion-like appearance. The following cases may be of interest in this connection :

CASE VI. *Osteo-myelitis of femur ; suppurative synovitis of knee-joint ; micrococci found in pus.*—Albert P., aged eight years, had been in his usual health until September 10, 1879. While at school, he was attacked almost suddenly with a severe pain in the lower part of the thigh, which was attended by several chills and fever. On the second day the pulse was 140, temperature 40° ; tongue coated ; total loss of appetite ; great thirst. The pain was very severe. Great tenderness, but no swelling over the lower epiphyseal cartilage of right femur. He was very restless and soon became delirious. Salicylate of soda in large doses was administered and tr. iod. and ice applied over the lower part of thigh. On the fourth day the knee and lower part of thigh commenced to swell. On the tenth day deep fluctuation could be felt ; the swelling appeared to terminate somewhat abruptly about the middle of the thigh, the surface pitted on pressure, and the superficial veins were enlarged. Chloroform was administered and a free incision was made on the outer aspect of the thigh between the quadriceps extensor femoris and biceps muscles ; after dividing the skin and fascia, the handle of the scalpel was used to separate the muscles until the periosteum was reached. This membrane presented a dark brown almost black color ; fluctuation was distinct underneath

it; it was incised freely, and about two ounces of a thick brownish red matter escaped. On introducing the finger the femur was found completely denuded of its periosteum from the lower epiphyseal line upwards to the extent of about six inches. The epiphyseal line was marked by a deep groove indicating beginning epiphyseolysis. The operation was performed under antiseptic precautions.

A microscopical examination of the matter removed, made immediately after the incision, showed the presence of red and white blood corpuscles, pus globules, fat globules and numerous living cocci. After the incision the pain and fever became less; both re-appeared with increased violence after swelling of knee took place. A large aspirator needle was introduced into the joint, and a small quantity of pus removed; on injecting a five per cent. solution of carbolic acid, it was found that the fluid escaped through the incision above, demonstrating the fact that the knee-joint was in direct communication with the primary seat of osteo-myelitis in the femur. Marked improvement followed this procedure. A splint was applied to support the parts and prevent if possible, a complete separation of the lower epiphysis. In this case the morbid process began near the cartilage of agglutination and became arrested at the middle of the femur above; below, the pus escaped at the partially separated epiphyseal junction, but subsequently infiltrated the epiphysis and reached the joint through a perforation of the articular cartilage. The most favorable result that can be hoped for in this case, will be extensive necrosis of the lower portion of the shaft of femur and partial or complete anchylosis of the knee-joint.

The femur is most frequently affected. Seventy-three per cent. of all of Demme's cases involved the femur. In this bone the disease manifests a special preference for the lower epiphysary region, while in the tibia the order of frequency, is reversed. The great frequency with which the extremities of the shaft of the long bones are affected, receives a plausible explanation from the activity of the physiological changes during the growth of bone, and perhaps to a lesser extent by the greater frequency of traumatism in these localities.

English claimed that the extremity of the shaft and epiphysis

toward which the nutrient artery is directed, is always primarily affected, on account of the greater blood pressure in that locality. Clinical experience has proved the contrary.

Volkmann has called attention to embolism as a cause of osteo-myelitis and necrosis.

Ritter reports a case of spontaneous fracture of clavicle following osteo-myelitis, which was caused by embolism of the principal vessel supplying the bone. The patient was a woman 34 years of age, who, four days after an abortion, suffered from a periosteal abscess over the middle of the clavicle, which was opened by incision and closed in four weeks. A painful spot remained over the seat of the abscess. At this point a spontaneous fracture took place after which the pain disappeared. Union with deformity took place in the usual length of time.

Azam reports a case where osteo-myelitis followed tumor albus of the knee in a patient 32 years of age.

Case III affords a similar illustration.

Billroth has seen several cases of osteo-myelitis follow acute articular rheumatism of the knee-joint.

Stanley has observed several cases of suppuration of bone near the articular ends with implication of the adjacent joint, caused by tubercular deposits in the cancellæ, as tubercular matter was found in the purulent discharges.

*Symptomatology.*—The symptoms attending osteo-myelitis always indicate a grave affection. They vary in intensity according to the location and extent of the disease and later in the disease they are modified by the complications that may arise. In severe cases a chill or succession of chills followed by high temperature initiates the disease. The febrile state sometimes obscures the local symptoms to such an extent as to lead the physician to suppose that the patient is suffering from an attack of typhoid fever. If we recollect that Lenator entertains the opinion that osteo-myelitis may occur during an attack of typhus fever, the difficulty in diagnosis must be very great in some instances as the latter would obscure the local manifestations. Goltdammer reported a case of acute osteo-myelitis of the tibia to the Medical Society of Berlin, where the general symptoms simulated typhoid fever to such an extent that the patient, after an illness of ten

days, was sent to the medical wards as a severe case of typhus fever.

The patient had a pulse of 110–120, temp., 40.41° C., tympanitis, furred tongue, enlargement of the spleen, bronchitis, rapid respiration and delirium. On close examination, a slight swelling was found over the lower part of the right tibia with tenderness on pressure which led to the diagnosis of acute osteo-myelitis. During the progress of the case, pleuritis, parotitis duplex and synovitis of the right shoulder-joint made their appearance. The patient died 8 days after admission, or 18 days from the beginning of the disease. A post mortem examination revealed the existence of acute osteo-myelitis of the tibia and pyæmia. Chassaignac believes that diarrhœa is present in almost all cases in the beginning, but it is a more constant symptom after septicæmia or pyæmia have made their appearance. Usually the first symptom is the pain. This is generally severe, deep-seated, constant, boring, tearing or throbbing and referred to the primary center of the disease, usually in the vicinity of an epiphysary cartilage. Patients old enough to describe their sensation, complain of a feeling as if the bone was being broken. The patient objects to moving or handling the limb on account of an aggravation of this distressing sensation. In some instances where the disease begins insidiously the patient may continue to walk for several days, but is lame on account of the pain, which is increased by the weight of the body making pressure upon the cartilage of agglutination. This aggravation of pain, by bringing the epiphysis and diaphysis in forcible contact, is an early, prominent and important symptom. Impairment or entire loss of function of the nearest joint and the entire limb is one of the first symptoms. Swelling seldom takes place before the third day, but tenderness is present from the beginning and is usually located at the junction of the diaphysis and the epiphysis, and, from the close proximity of this point to the joint, disease of the latter is generally suspected by the patient and not unfrequently also by the physicians. In chronic cases, swelling may not take place for weeks or months; when it does, it is due to an extension of the morbid process to the periosteum or the neighboring soft parts. After it has once made its appearance it increases with

great rapidity, including usually one joint and extending over a surface corresponding to the extent of bone involved. The swelling is œdematous and terminates abruptly at a point where the disease in the interior of the bone has become limited. Chassaignac was the first one to call attention to this peculiar clinical fact and place great stress upon its diagnostic significance. The superficial veins as a rule are enlarged and if the obstruction in the deep-seated veins from thrombosis or pressure becomes great, œdema of the entire limb may take place. In regard to fluctuations, Ed. V. Wahl says that it is circumscribed at first in phlegmonous inflammations of the soft parts, while it is diffuse from the beginning in osteo-myelitis. I regard this distinction as a good one.

From the anatomical location of the primary seat of the lesion it is easy to conceive that the products of inflammation are evacuated spontaneously only after extensive destruction of bone and soft tissues. On account of the resistance offered by the unyielding walls of the compact tissues many of the products of inflammation are forced into the circulation through the veins, producing in the first instance high temperature, and, later, fat embolism and pyæmia. Numerous experiments made with injections of chemical and medicinal substances directly into the marrow, have proven the possibility of thus forcing the substances directly into the veins. It is therefore logical to assume that affections of veins in cases of osteo-myelitis must be of frequent occurrence. In most of the fatal cases where post mortem examinations have been made, the veins were found affected, their interior being filled with thrombi in different pathological conditions. These necessarily lead to metastatic deposits in various internal organs. Fat embolism and pyæmia take place in a similar manner; both are attended with difficulty of respiration, cough and an aggravation of the general symptoms. In many severe cases the morbid process is not limited to a part or an entire bone, but appears simultaneously or in rapid succession in different bones of the body. Cases of this description have induced Roser to apply the term pseudo-rheumatism, and Simon used the term necrosial fever from their resemblance to acute articular rheumatism. Volkmann regards this form as a rare affection and applies to

it the term osteo-myelitis spontanea multiplex. A number of cases of this, the severest form of osteo-myelitis, have come under my observation.

CASE VII. Helen M., aged 18, not affected with any constitutional taint, was in good health until Nov. 12, 1872, when after a supposed exposure to cold she was taken suddenly ill with a chill, followed by high temperature (40.5°), and pain in the right knee and left shoulder-joint. The pulse varied between 120–140, and the fever was continuous; the morning and evening temperature ranging between 40°–40.5°. The general symptoms, and especially the low muttering delirium simulated typhoid fever, and almost obscured the local symptoms. Diarrhœa, slight cough, and rapid breathing were early and conspicuous symptoms. The pain in the localities mentioned, was at first severe but soon subsided after the appearance of a diffuse œdematous swelling. Well-marked tenderness existed over the upper epiphysary region of the tibia and humerus. New points of inflammation made their appearance during the progress of the case, at the middle of the clavicle on right side; lower end of femur, left side; third and fourth rib, left side; lower end of radius on right side. At the end of the first week deep fluctuations could be detected at most of these places, but the patient's general condition had assumed such a serious aspect that no incisions were made. Notwithstanding the early and persistent use of stimulants and tonics, the patient died on the 10th day of the disease, with symptoms indicating serious lung complications from metastatic deposits.

CASE VIII. *Multiple osteo-myelitis; pyœmia; death.*—Joseph E., aged 14 years, a healthy boy, was taken Dec. 31, 1878, with a severe pain in the middle of the right thigh, which rendered him at once unable to walk. The thigh did not become swollen for three days. Chilliness and fever were present from the beginning. When first seen the thigh was swollen and œdematous from the lower third upward, measuring two inches more than the opposite one; superficial veins enlarged; pulse 120; temperature 40°. The patient was very restless and delirious most of the time; great thirst and total loss of appetite. On the ninth day the lower part of the right fore-arm, on radial

side and wrist was found swollen, as well as the right parotid region, the latter occurrence rendering deglutition difficult. He remained in about the same condition, the pulse ranging from 116 to 130, and the temperature from 38.5° to 40° until the 21st when the left knee commenced to swell; December 30th, a swelling appeared over the left clavicle; January 15, 1879, fluctuation being present, an incision was made on the outer aspect of the thigh, lower part of radius and middle of clavicle, giving exit to a thin sanious fluid. The femur and radius were found extensively denuded and the clavicle had suffered spontaneous fracture about its middle. The abscess cavities were kept open by drainage tubes and were washed out daily with a 3 per cent. solution of carbolic acid. Toward the final termination the patient became sallow and suffered from a dry hacking cough, symptoms plainly indicating the presence of pyæmia. The patient died on the 27th of January, eight weeks from the beginning of the disease.

Case IX. *Multiple osteo-myelitis; necrosis; recovery.*—John S., aged 14, with an hereditary strumous diathesis, was attacked suddenly during the month of November, 1872, with a severe pain in the upper part of the right thigh and the lower part of the left tibia almost simultaneously, attended by violent constitutional disturbance, fever and delirium. In a few days a rapid and diffuse swelling appeared in both localities, in the thigh it evidently involved the hip-joint. About two weeks afterward, the patient failing rapidly, chloroform was administered and an incision made on the right side, extending into the hip-joint, which gave exit to a large quantity of a thick brownish red fluid, mixed with laudable pus. The upper portion of the femur was denuded of periosteum and the hip joint affected with suppurative synovitis. The incision over the lower portion of the left tibia liberated a moderate amount of a thin sanious fluid, mixed with numerous fat globules. From the epiphysary junction upward, the tibia was separated from the periosteum for a space of more than five inches. The abscess cavities were washed out daily with carbolized water, and nutritious food was freely administered as well as tonics and stimulants. The pain diminished after the incisions, but the general condition did not improve for several months. Profuse suppuration continued for several months until the upper epiphysis

of the femur and a number of spiculæ of bone escaped spontaneously from the hip-joint as well as a sequestrum from the tibia when it almost ceased and the patient regained his former health. In about one year the wounds had closed completely. The left leg was perfect; the right showed nearly two inches of shortening, but a movable false joint with slight flexion of the thigh upon the pelvis.

In some cases the disease appears in another, perhaps distant bone in a sub-acute form several weeks after the first invasion, and fails to develop itself fully because the original infection appears, as it were, to have expended its force at the primary seat of localization. In such cases the process terminates with an increased production of bone instead of suppuration. To substantiate this assertion I will report the following cases:

CASE X. *Osteo-myelitis of femur; spontaneous fracture; hyperplastic osteo-myelitis of radius; recovery.*—August Schulz, aged 13, son of healthy parents, after an alleged fall, was taken with severe pain in the left thigh during the winter of 1874, which soon rendered walking impossible. I saw him two weeks afterwards, and found the whole thigh and knee enormously swollen and œdematous. The superficial veins were enlarged. Fluctuation was perceptible around the whole circumference of the thigh, and was well-marked on the outer aspect of the limb, at the junction of the lower with the middle third of the femur. The patient was emaciated and very anæmic. An incision was made between the biceps and quadriceps extensor femoris, about 5 ctm. above the knee-joint, which gave exit to a large quantity of a mixture of a thick, brownish-red emulsion, with pus. The lower end of the femur, from the epiphysary junction upwards, to the extent of 20 ctm., was found completely denuded of periosteum. Drainage tubes were inserted, and the cavity well washed out daily with carbolized water. About two weeks later I found, during one of my visits, that the femur had fractured spontaneously at a point near its middle. This occurrence added greatly to the perplexities in the management of the case, and increased my apprehensions in regard to the prospects of the future usefulness of the limb, and not less concerning the possibilities of saving the life of the patient. The limb was placed

as nearly as possible in its natural position, with the knee slightly flexed, and a fenestrated plaster of Paris splint applied from the toes to the hip-joint. Soon after this unfortunate complication had taken place, the patient complained of a pain in the lower part of the right radius, and in a few days a circumscribed hard swelling made its appearance in that locality. Tincture of iodine was freely applied, which soon arrested the further progress of the disease and subdued the pain. About three months after the application of the first plaster splint, the new bone had become sufficiently firm to retain the position of the limb. The swelling above the wrist gradually disappeared, and the patient began to improve in his general health, so that during the following summer he was able to go to school with the aid of one crutch, a fistulous opening at the point of incision discharging a moderate quantity of pus. Three years afterwards I removed by sequestrotomy a large, rough, central sequestrum 17.5 ctm. in length, after which a permanent recovery took place, with a good, moveable knee-joint. Notwithstanding a slight curvature of the femur, with the concavity inwards, it is about 1.8 ctm. longer than the opposite one.

Case V may also serve as an illustration in this connection.

*Diagnosis.*—Mr. Holmes has well said that the disease under consideration is more frequently recognized at post mortem examinations than at the bedside of the sick. I am well satisfied that it is often mistaken and treated for other affections, as periostitis, ostitis, inflammation of joints, rheumatism, typhoid fever and even phlegmonous inflammation of the soft parts. When we remember that periostitis, ostitis, synovitis and cellulitis are secondary lesions intimately associated in the clinical history of every case of osteo-myelitis, and furthermore, that the fever attending it assumes such close resemblance to typhoid fever, it is not surprising at all that many cases are not correctly interpreted during life. A careful consideration of every feature of the clinical picture presented by each case, can only enable us to arrive at correct conclusions. There is no single pathognomonic symptom that would infallibly lead us to a correct diagnosis. The presence of fat globules in the products of inflammation was regarded as diagnostic by Chassaignac and Roser. Although

this symptom is present in some of the cases, it is absent in a larger number, and it may also be present during the course of other suppurative processes, as I have repeatedly observed. Fat is almost always present in the purulent discharges from gangrenous inflammation of the cellular tissue. In a diagnostic point of view, the pus derived from the primary seat of the disease presents the following elements for examination: 1. Blood corpuscles, red and white, their number depending upon the acuteness of the attack. 2. Pus globules. 3. A thick, brown, emulsion-like fluid containing fat globules and micro-cocci.

One of the most important symptoms for differential diagnosis is the absence of swelling for the first few days regardless of the severity of other symptoms, also its rapid diffusion after it has once made its appearance. In periostitis and phlegmonous inflammation of the cellular tissue, swelling is one of the earliest symptoms. In osteo-myelitis the swelling is at first œdematous, extends symmetrically around the entire bone and terminates abruptly at a point where the morbid process in the interior of the bone has become arrested. Fluctuation in acute cases appears about the end of the first or during the second week. The superficial veins are usually enlarged. A consecutive affection of one or more joints in close proximity usually makes its appearance about from the end of the first to the fourth week. The time of its appearance as well as its character depends largely upon its causation. While joint affections are almost constant in osteo-myelitis, they are seldom associated with periostitis. Early incisions are of great diagnostic value; besides affording an opportunity of examining the condition of the bone, the subsequent history is of importance in arriving at a correct conclusion. If the pain and fever subside after the incision, we have to deal, in all probability, with a case of cellulitis or periostitis; if they are only diminished or continue unabated, it may be safely concluded that the disease is located in the interior of the bone. The frequency with which pyæmia occurs during the progress of this disease, must also be remembered in rendering a final diagnosis. A very interesting case was reported by M. Auger at a meeting of the Société de Chirurgie, on January 8, 1879, which well illustrates the obscurity of diagnosis in some

cases, as well as the liability of neighboring joints to become involved if the disease occurs in an adult. The patient, a man 54 years of age, after having been out hunting, felt on the following day a violent pain in the right leg. The pain was most severe in the calf of the leg, the ankle and along the course of anterior tibial nerve, and came on in paroxysms without any regular intermittence. For a month the tibia was not swollen, when in a few days a purulent discharge took place on the upper third of the bone. Soon after this time the knee began to swell and the medullary canal was found filled with pus. An incision was made into the knee-joint on both sides under antiseptic precautions, and free drainage established. In three months the patient died of pyæmia.

*Prognosis.*—The mortality attending osteo-myelitis appears to be greater in hospital than private practice. Demme lost 4 out of 17 cases; Luecke, 11 out of 24; Kocher, 9 out of 26; and Schede 3 out of 23 cases.

Uncomplicated cases do not prove fatal very often. Roser says a fatal issue may take place without localization, and attributes death in such cases to an acute dyscrasia. Acute fatal cases can usually be traced to pyæmia, the result of phlebothrombosis. The organs most frequently affected by metastatic deposits, are the lungs, and next in frequency, the kidneys; in the former causing pleuritis, pneumonia or abscesses; in the latter, diffuse nephritis and anasarca. Fat embolism of the lungs has already been referred to as a cause of death. Great enlargement of the spleen is one of the gravest prognostic symptoms. Where the marrow is severely and extensively affected leucæmia is sometimes produced as a consequence, and of course leads to a fatal termination.

Schede has found the proportion of the white to red corpuscles of the blood change from 1.100 to 1.200.

I have invariably observed early and marked anæmia in all of my cases.

The thermometer furnishes us with an important prognostic aid in this as well as in many other acute affections.

If the morning and evening temperature remain constantly

high, that is to say, range between 40°–40.5° during the first week, it indicates a severe case.

The more the general symptoms resemble typhoid, the graver the case. Chronic pyæmia is sometimes the cause of death. After incision secondary infection may take place, which may result in death by septic or pyo-septic infection. This result is more likely to follow in this than most other affections, as the cavities in the bone are reached and disinfected with the greatest difficulty.

In regard to the function of the limb after osteo-myelitis, a few words are necessary. Necrosis to a greater or less extent is the rule. Joint affections and partial or complete separation of epiphysis are frequent complications. If the effusion into the joint is passive from phlebothrombosis, or catarrhal, it is generally absorbed, and the function of the joint is restored completely. If the effusion is sero-purulent and the cartillage remains intact, aspiration and washing out the joint with a five per cent. solution of carbolic acid may be sufficient to restore the usefulness of the limb. Stiffness of the joint to a greater or less extent as well as mal-position of the articular ends of the bones, are events that cannot be avoided in all cases, even by the most skillful and attentive treatment. If the cartilage of the joint has become destroyed by suppurative synovitis, false or complete anchylosis and more or less deformity cannot be prevented. Separation of the epiphysis may be repaired completely, as will be seen from the following cases:

CASE XI. *Osteo-myelitis of both tibiæ; sero-purulent effusion in knee-joints; separation of epiphyses; recovery.*—Carl Schulz, aged 14, after exposure to cold was taken suddenly with severe pain in the upper part of both legs during the winter of 1874. No swelling could be discovered the first four days; after this time the upper part of both legs became rapidly swollen and œdematous. The patient was treated for rheumatism for four weeks. When I saw him, about this time, I found him very much emaciated and extremely pale; pulse very rapid; profuse perspiration, etc. A fistulous opening existed on both sides about three inches below the knee-joint, discharging freely this sanious pus. The legs were œdematous and the superficial veins

enlarged. The shaft of the tibia was completely separated from the epiphysis on both sides. A probe could be passed through the opening between the diaphysis and epiphysis. The shaft of the tibia was denuded of periosteum over a considerable extent. Both of the legs were flexed and the slightest attempt to move them was attended by great pain. Both knee-joints were swollen. The patient was placed under the influence of chloroform and the existence of epiphyseolisis verified by the existence of preternatural mobility and crepitus at the epiphyseal junction. To ascertain the character of the effusion into the joints, aspiration was performed and a sero-purulent fluid removed. Both joints were thoroughly washed out with a five per cent. solution of carbolic acid and a plaster of Paris dressing applied from the toes to the middle of the thighs, with fenestrated openings over the anterior aspect of the leg. The abscess cavities were washed out daily with carbolized water and the wounds covered with cotton saturated in carbolized oil. Tonics and stimulants were given freely to support the patient's strength.

With the knowledge I then had of this disease, I must freely confess that I should have been tempted to advise amputation had the disease been limited to one side. As it was, I had but little hope of saving the patient's life. Contrary to all expectation, however, slow but uninterrupted improvement began to take place. A slight effusion reappeared in a few days but was absorbed without further treatment after several weeks. A number of months subsequently, several rough pieces of bone escaped through the openings, after which suppuration ceased and the wounds closed. About a year after the beginning of the disease the patient was able to walk with the aid of a cane, the joints being somewhat stiff. At present the upper extremities of both tibiæ are enlarged, the mobility of the joints is completely restored, the patient is a strong, healthy young man, nothing in his gait indicating the extent of his previous disease.

CASE XII. *Osteo-myelitis of tibia; partial separation of lower epiphysis; operation; recovery.*—August Scholtke, aged 11 years, a previously healthy boy, was taken with a severe pain in his right leg, accompanied by grave constitutional symptoms during the month of January, 1879. In a number of weeks an

abscess opened spontaneously above the ankle-joint after which the pain diminished but the patient remained in bed in a feeble condition for several months. He was admitted to the Milwaukee Hospital, August 15, 1879. On admission the lower part of the tibia was very much enlarged from the ankle-joint to the juncture of the middle with the upper third. Three fistulous openings existed, as follows: over the middle of the shaft, above the internal malleolus, and above and internal to the external malleolus. With a probe a loose piece of bone was discovered, surrounded by a strong involucrum. After placing the patient under the influence of ether and applying Esmarch's bandage, an operation under antiseptic precautions was performed for the removal of the sequestrum. With a chisel the cloacæ were sufficiently enlarged to permit the extraction of the sequestrum, which measured 18 ctm. in length and was rough on all sides, indicating its central origin. A partial separation of the lower epiphysis was found; a probe could be passed freely in every direction between it and what remained of the shaft.

The granulations were scraped out with a sharp spoon and the cavity disinfected with an 8 per cent. solution of chloride of zinc and carbolized water. Lister's dressing was applied. No fever followed the operation and only a trace of suppuration. The process of repair was initiated at once and in a few weeks the wound had entirely healed. The new tibia is 1 ctm. longer than the opposite one, giving to the foot a slight varus appearance.

CASE XIII. *Osteo-myelitis of the tibia; separation of upper epiphysis; recovery.*—John M., aged 12 years, during the month of March, 1871, while engaged playing ball, was suddenly siezed with an intense pain in the head of the right tibia, which soon became so severe that he was unable to stand on the affected limb. Slight fever was present from the beginning, and a diffuse swelling appeared below the knee in a few days. In about three weeks an abscess was opened below the knee which gave exit to a considerable quantity of osteo-myelitic pus. Antiseptic injections were made daily and the wound covered with a gauze compress kept saturated with carbolized water. About two weeks after the incision was made, complete epiphyseolysis and swelling of the knee-joint took place, but as the fever had almost entirely

subsided, the effusion was supposed to be of a serous nature. A plaster of Paris bandage was applied from the toes to the groin with a fenestrum over the incision. Profuse suppuration for a while threatened to prostrate the patient but diminished after the removal of a rough, thick but short sequestrum. The effusion into the joint disappeared without special treatment and the patient regained his usual health and almost perfect use of the limb in a little over a year. Soon after the separation of the epiphysis the the patient was seen by an old surgeon, who advised amputation as the only means of saving his life; having, however, observed the wonderful restorative power of the *vis medicatrix naturæ* in similar cases, I insisted on pursuing a conservative course and was amply rewarded by obtaining such a satisfactory result.

From anatomico-pathological reasons the result is less fortunate if separation of the upper epiphysis of the femur or humerus takes place during an attack of osteo-myelitis. In these cases the head of the bone, deprived of its principal blood supply and surrounded by the products of inflammation, becomes necrosed and acts as a foreign body, exciting, not unfrequently, serious disorganization of the remaining joint structures, as was the case in the following instance:

Case XIV. *Osteo-myelitis of femur; separation of upper epiphysis; operation; recovery.*—L. C., aged 10 years; the youngest member of a healthy family of children, fell from a haystack during the summer of 1870, and, as was thought at the time, sprained his hip. He was soon able to leave his bed, but walked quite lame; a few weeks later the knee on the same side began to pain him; the hip and upper part of the thigh became swollen and tender; violent constitutional symptoms followed, with hectic fever and rapid emaciation. In about three months an abscess formed in front of the upper part of the thigh, which soon opened spontaneously and discharged a large quantity of pus. The patient remained in a very feeble condition for several months, when gradual improvement commenced to take place, so that in the spring he was able to walk on crutches. About eighteen months later I performed excision of the hip-joint. The head of the bone was found loose in the joint; on

making a section through the bone below the great trachanter, the bone was found very soft and the cancellæ infiltrated with pus, the sawed ends presenting a greenish or gray color; consequently two more sections were made lower down until healthy bone was reached, removing in all the head and four inches of the shaft. The periosteum was thickened, and was carefully separated and preserved. The wound closed in a short time, but reopened on several occasions during the next two years, discharging several small spiculæ of bone, when it finally closed permanently, and the patient recovered with a very useful limb—motion in the false joint and two inches of shortening.

CASE XV. *Osteo-myelits of femur; separation of upper epiphysis; operation; recovery.*—George Muehlhauser, aged 15 years, of a strumous diathesis, has been in delicate health for a number of years. Without any obvious cause, he began to suffer from symptoms of acute coxitis in the fall of 1875. For several weeks he was treated on general principles, rest, extension, fixation, tr. iod., fomentations, etc., when the general symptoms became so grave that excision of the head of femur was considered the only chance to save the patient's life. On opening the joint, the head of the femur was found necrosed and completely detached, the upper portion of the femur was soft and infiltrated with pus. On a level with the trochanter minor the bone was porous, otherwise healthy. In about a year the patient recovered completely, the limb being about 4 ctm. shorter. In both of these cases the disease originated evidently in the cancellous tissue near the cartilage of agglutination and involved the joint secondarily. In the last case the upper and posterior portion of the acetabulum was denuded of cartilage, the affected tissues were scraped out with a sharp spoon. The prognosis in regard to the usefulness of a limb after an attack of osteo-myelitis depends less upon the extent of bone involved than the presence and severity of joint complications.

*Pathology.*—Simple non-infectious inflammation of the medulla is a physiological reparative process. According to Virchow, the medulla of infants resembles granulation tissue chemically and microscopically. The restorative function of myeloid tissue is studied most advantageously in cases of fracture and around osteo-

myelitic foci; in these instances its cells are transformed directly into bone cells, uniting the fragments in the former case and limiting the extension of the latter. In osteo-myelitis the inflammatory process extends beyond the process of repair, its tendency being in an opposite direction—to suppuration and necrosis. The inflammation is a specific one, and depends upon the presence of septic germs which are either brought in direct contact with the medulla or have gained entrance from without into the circulation through the respiratory or gastro-intestinal tract, and are conveyed with the blood to the marrow where localization takes place. Many causes which have been previously enumerated may determine localization, but the *sine quâ non* factor in calling into existence this destructive process, is the presence of living septic bacteria.

*Morbid Anatomy.*—Lidell describes three stages or morbid conditions in which the marrow may be found: 1. Carnification, 2. Suppuration, 3. Gangrene. In the first stage the substance of the marrow appears congested and has become abnormally firm. Fat globules are set free and are removed and the myeloid cells are generated with great rapidity. The sclerosis of the medulla is owing to a production of new connective tissue and partly to a hardening of the existing fibrous network. Only in exceptional cases is the disease arrested in this stage, but usually passes into the stage of suppuration. Acute œdema of the cellular tissue around the bone indicates that suppuration has taken place in its interior. Generally multiple deposits are disseminated over a greater or less area of marrow, but two or more of these purulent collections may coalesce and form large suppurating cavities. Pus globules are produced from leucocytes, connective tissue or myeloid cells, or all of them. In the cancellated tissue the cancellæ are either removed by pressure and absorption, forming abscess cavities, or a certain district loses its vitality and is separated from the surrounding living tissue as a sequestrum. The most intense form of infection may terminate in gangrene of the marrow. This form is extremely rare, and when it does occur, it is in traumatic cases, after amputations, in infected and over crowded hospitals. As a direct extension of the morbid process to adjacent tissues by continuity or contiguity of structure,

we have present in every case, ostitis, osteo-chondritis, periostitis and in most cases participation of neighboring joints.

The bone substance, from the intensity of the inflammatory process, or from arrest of circulation, undergoes necrosis, and if the life of the patient is preserved, is sooner or later detached from the living tissues. Instances have been reported where an entire bone, including both articular ends, has lost its vitality, constituting a large sequestrum. Usually only a part of the shaft, and in preference that near one of the ends of the diaphysis, becomes necrosed. In the lower part of the femur, necrosis takes place most frequently on the posterior aspect of the bone, and in the upper extremity of the humerus on the outer surface. If the vitality of the bone is not destroyed, its substance is softened by liquefaction and absorption of the inorganic matter, and from increased histogenesis of the marrow and bone cells which subsequently produce sclerosis. Osteo-chondritis may exist as a distinct affection, but more frequently it constitutes an important element in the history of osteo-myelitis. It may result in a partial or complete separation of the epiphysis from the diaphysis. I have no doubt that the disk of temporary cartilage placed between the shaft and epiphysis, serves a useful purpose in protecting the joint from the invasion of disease. The cartilage interrupts completely the continuity of the medullary tissue in the epiphysis and diaphysis, and to a less extent also the vascular connections. If the disease originates in the diaphysis, the cartilage must be destroyed to a greater or less extent before it can invade the epiphysis. Mr. Hutchinson, in his "Illustrations of Clinical Surgery," gives a beautiful illustration to support this view. The femur was amputated at its upper third. The patient died of pyæmia. The marrow and cancellated tissue of the bone were infiltrated with pus and presented a greenish color from the end of the bone to the cartilage of the great trochanter and head of bone. The bone above the cartilages was perfectly normal. I believe it is also a well-established fact that adults are more liable than children to suffer from destructive suppurative synovitis of joints, if the disease is located near the articular ends of the bones.

The softening of the cartilage usually commences at its mar-

gins. After complete or partial destruction of its substance, if the disease has not expended its force, the epiphysis is in danger of becoming infiltrated with the infectious products of inflammation, and the joint is placed in great jeopardy. Joint affections usually make their appearance from the 15th-19th day (Chassaignac), but may occur as early as the third day, or be delayed for months in chronic cases. The swelling of the joint appears slowly and insidiously, without any additional severe local or general symptoms. The joint becomes affected either by the establishment of a direct communication with the osteo-myelitic center through a perforation of the articular cartilage, or by an extension of the periosteal inflammation to the structures of the joint.

In some instances a chronic osteo-myelitis in an epiphysis leads to caseous degeneration of the products of inflammation (phthisis of bone) which may remain latent for a long time, but when it begins to break down and suppuration takes place, perforation into the joint is a frequent occurrence. If the joint communicates directly with the disease in epiphysis, the result is necessarily a suppurative synovitis with extensive disorganization of the articular and peri-articular tissues, and may produce infection of the opposite bone. Mr. Hutchinson, in his work quoted above, reports a very interesting case of this kind. A boy who had suffered a contusion of the hip, died of pyæmia two weeks after the injury. A post mortem examination revealed the existence of dirty pus in the hip-joint. The iliac bone and head of femur showed signs of recent inflammation. The affected portions of bone were discolored, being yellow in some parts, dusky purple or green in others. The discoloration in the head of femur was abruptly limited by the line of the epiphyseal cartilage.

If the joint inflames by contiguity, the process extending from the periosteum to the ligaments and synovial membrane, the product of inflammation is more likely to be serous, or sero-purulent, and the function of the joint is less apt to suffer permanent injury. Entrance of pus into a joint between the periosteum and bone must be a rare accident, as this membrane, with the ligaments is very firmly attached to the surface of the epiphysis. The periosteum participates, to a greater or less degree, in all cases. The periostitis must be purulent, fibrous, hæmorrhagic or osteo-

plastic, according to the character of the exudations. The disease extends to the periosteum from the primary seat through the Haversian canals or at the epiphysary junction. The irritation may not exceed the physiological limits and production of bone is the result. In severe and acute cases suppuration is always the result. The hæmorrhagic form is invariably fatal. If an incision is made before perforation of this membrane has taken place, its outer surface is recognized by its very dark brown, purple or almost black color. In typical cases the pus underneath it has a brown, bluish, emulsion-like aspect. After perforation of the periosteum, pus escapes into the parostral tissues and produces the well-known phlegmonous inflammation of the connective tissue. If the entire marrow has been destroyed and the periosteum completely separated, circulation in the bone is arrested and necrosis of the entire diaphysis is the inevitable result. After the acute symptoms have subsided, the reparative process is at once inaugurated. New bone is formed on the inner surface of the periosteum, which forms a case or involucrum around the dead bone until the latter is detached and removed as a sequestrum, either by spontaneous expulsion or through the interference of art. The cloacæ which lead to the dead bone indicate deficiencies in the periosteum, caused by spontaneous perforation, incision or destruction of the membrane. Osteo-sclerosis follows osteo-myelitis, but in exceptional cases the new bone remains porous and soft (osteo-porotic), a condition described by Volkmann and Schede, which may become the cause of various degrees of deformity from bending of the shaft. The veins of the marrow, bone and periosteum in inflammation of these structures are most always affected; the exceptions to this rule are few. Coagulation of the blood in the veins leads to phlebo-thrombosis. If the clot fails to undergo organization, it breaks down and small particles enter the circulation and are carried to distant organs where they are arrested as embola, causing metastatic deposits so characteristic of pyæmia. The same result may follow phlebitis and periphlebitis.

Dr. Woodward attributes the frequency with which pyæmia occurs in this disease to a septic infection which is propagated by continuity from the putrefied marrow to coagula in the veins.

Hutchinson believes that the particles of organic matter not only produce embolism and thrombosis but that they serve at the same time as carriers of living matter capable of infecting the tissues around the plugs.

*Treatment.*—The indications to be fulfilled in the treatment of a case of osteo-myelitis are:

1. To neutralize, if possible, the infectious element by local and general use of antiseptics. 2. To subdue inflammatory action. 3. To establish, under antiseptic precautions, an early and efficient outlet for the products of inflammation. 4. To prevent deformity. 5. To sustain the patient's strength by procuring the best hygienic surroundings and by the early administration of stimulants and tonics.

An early diagnosis is of paramount importance. An uncertainty in this regard often prevents the adoption of timely and positive measures to prevent or combat the progress of the disease. The deep-seated location of the malady offers the greatest obstacle to a correct diagnosis and successful treatment. Taking it for granted that in the spontaneous variety the septic germs enter the system through the gastro-intestinal tract it would be rational to assume that a brisk cathartic administered soon after the appearance of the first symptoms would be an efficient remedy to cut off any further supply of these noxious agents. In many instances nature makes an attempt in this direction by establishing a copious diarrhœa. A large dose of calomel administered for the same purpose and in the same manner as advised during the early stage of typhoid fever, could not fail to produce a beneficial effect. Salicylate of soda given in large doses from 6.0—24.0 grms. during 24 hours has been advised by Kocher with a view to neutralize the poison. In such doses this remedy would also promptly reduce the temperature, which is constantly high in all acute cases. If the medicine is rejected by the stomach it can be administered by enema. Opium must be given in sufficient doses to alleviate pain. The limb should be placed in an elevated position and the strong tr. iodine applied daily until vesication is produced. Demme, Billroth and Volkmann speak very highly in favor of iodine applications. If there is reason to believe that the first stage has not passed, ice should be applied over the part

affected for the purpose of diminishing congestion, provided such applications are agreeable to the patients. As soon as swelling takes place it is a sign that suppuration has taken place when warm fomentations should be substituted.

In regard to incisions, great diversity of opinion still prevails. Previous to the researches of Demme, early and free incisions were practiced. As the results in most cases were disastrous, he was led to adopt a more conservative treatment. He resorted to an expectant course of treatment until the poison had exhausted itself in the system, as indicated by reduction of temperature and cessation of local inflammation, and then made large incisions. For the purpose of affording an outlet to the products of inflammation, Klose made early and small incisions over the epiphysary junction.

Most all authorities agree that early and free incisions expose the patient to additional risks of septicæmia and pyæmia, while at the same time the primary seat of suppuration is not reached unless trephining is also performed.

M. Ollier is an advocate of early incision combined with trephining. In a communication read before the Academy of Sciences of Paris, he claims that trephining is applicable to all forms of osteo-myelitis with severe general symptoms. He says the most painful variety is usually found near the extremities of long bones. Trephining, even in the most diffuse form, will arrest the intense pain by reliving pressure; where the disease is circumscribed it affords prompt and decided relief. In the acute form, trephining will often prevent the grave and fatal symptoms, while in the sub-acute and chronic form it removes the most distressing symptom—pain. In eight out of nineteen cases of painful osteo-myelitis he found pus; and in ten cases the marrow presented different diverse morbid appearances, while in the last case, a case of acute osteo-myelitis of femur, a large quantity of fluid blood escaped. Two of the nineteen cases died of pyæmia. After pus has appeared beneath the periosteum or in the parosteal tissues, no time should be lost to remove it promptly. If it is permitted to accumulate, it may seriously compromise the integrity of neighboring tissues and organs and in addition serve as a source of infection. It can be removed safely with

the aspirator and the abscess cavity thoroughly washed out with carbolized water for the purpose of neutralizing the local infection, or by making one or more incisions under antiseptic cautels. Lister has found that no less than a five per cent. solution of carbolic acid is necessary to destroy bacteria or their products. Hueter has employed parenchymatous injections of carbolic acid with decided benefit in other inflammatory affections of bones and soft tissues. Kocher suggests injections of carbolized water into the tissues around the bone, made with a hypodermic syringe, several syringes full to be injected at different points twice daily. It seems to me the safest plan would be, after fluctuation can be detected, to remove the fluid with an aspirator, using a large needle and subsequently washing out the cavity with a five per cent. solution of carbolic acid. This simple procedure should be repeated as soon as the fluid reappears and until the acute local and general symptoms have subsided, when a permanent opening can be made without much risk of secondary infection. Kocher also suggests the propriety of making intra-osseous injections by penetrating the bone with a small perforator, and injecting carbolized water, thus reaching the primary focus of the disease. Theoretically the suggestion appears valuable, practically it would be uncertain and difficult of execution. Incisions, especially if practiced during the acute stage, should be made only under the antiseptic treatment. They should be made, if possible, at a point out of reach of any important vessels and nerves and over some well marked intermuscular septum. The limb should be shaved, cleaned and disinfected around its entire circumference and over a considerable space. To prevent hæmorrhage the knife should be used as little as possible; after dividing the skin and fascia the handle of scalpel and finger should be used to separate the muscles until the pus escapes, or if the periosteum remains intact it is incised with the knife. The opening should be sufficiently large to permit the introduction of the index finger for the purpose of ascertaining the condition of the bone. If necessary one or more counter openings must be made, with a view of securing free drainage. Large drainage tubes should be inserted, the cavity thoroughly washed out with a weak solution of chloride

of zinc or a five per cent. solution of carbolic acid and the antiseptic dressing applied.

No special benefit can accrue from making the incisions 12–30 ctm. in length as recommended and practiced by Demme. The antiseptic treatment of wounds justifies operative interference, which would heretofore have been considered unsafe and imprudent. It prevents decomposition of the products of inflammation and its result—septicæmia. Should putrefaction take place, then an attempt should be made to render the abscess cavity aseptic by applying thoroughly an eight per cent. solution of chloride of zinc, followed by a five per cent. solution of carbolic acid. Should an opening exist before the patient comes under treatment, free drainage must be established by enlarging the opening or making new incisions. Where the greater portion or the entire diaphysis of a bone has become necrosed and has become separated at one or both epiphysary junctions, it may become necessary to remove it during the acute stage to avert exhaustion of the patient from the profuse discharges and hectic irritation incident to such a condition. It has been argued against this operation, that the bone would not be sufficiently regenerated after its removal. This fear is however not supported by facts. Duplay, Holmes, McDougal, Lefort, Giraldes, Spence, Petregrin, Philzky, Wilms, Cheever, Ropes, and Gay, have each reported cases where almost complete reproduction followed the removal of the entire shaft. It is very important, especially in young persons, to preserve both epiphyses to prevent subsequent shortening and deformity of the limb.

I will report one case, where, after excision of two thirds of the shaft of the tibia, complete reproduction took place.

CASE XVI. *Osteo-myelitis of tibia; excision of two-thirds of the shaft; recovery.*—John Endlich, aged 12 years, of healthy parents, was the subject of osteo-myelitis of the right tibia which resulted, after four weeks, in separation of the upper epipysary junction; the knee-joint was considerably swollen at the time. The temperature was continuously high, delirium, rapid emaciation, etc. An incision was made three inches below the knee, after the second week, which gave exit to a large quantity of thin sanious pus on which floated numerous fat globules. Six weeks

from the commencement of the attack the constant fever and profuse suppuration threatened fatal exhaustion unless the source of irritation could be removed; it was consequently decided to perform excision of the shaft. After the patient was placed under the influence of chloroform an incision was made along the inner surface of the tibia, extending along the entire length of the diaphysis. The upper epiphysis was found detached, and the upper two-thirds of the shaft denuded of its periosteum; the bone was divided with a chain saw, about two inches above the ankle-joint. Immediately above the section the lines of demarcation between the dead and living bone could be distinctly seen. The medullary canal of the portion of bone removed was infiltrated with pus. The inner surface of the periosteum showed, at some points, deposits of new bone. The limb was placed at first upon a posterior splint, and afterward a fenestrated plaster of Paris splint was applied from the toes to the knee, and the wound dressed with carbolized oil. The fever and discharge disappeared almost entirely after the operation, and the general health began to improve. New bone began to fill up the large gap and in four months complete regeneration had taken place. The tibia is now somewhat larger and longer than the opposite one and the function of the leg is perfect. When both epiphyses have become separated from the diaphysis, the operation for removing the shaft is an easy one; all that is necessary is to make an incision sufficiently large to remove the sequestrum. Suitable mechanical support must be applied for a long time to prevent bending of the new bone. Should swelling of one or more joints arise, it is always well to make an exploratory puncture with a hypodermic syringe to ascertain the character of the effusion. If the effusion is serous no special treatment is necessary, unless the tension becomes great causing severe pain, when it can be removed by simple aspiration. If it is found sero-purulent, it should be removed with aspirator and the joint washed out with a 5 per cent. solution of carbolic acid, and the operation repeated as often as may become necessary. If the joint contains pus the same treatment is applicable, but if the effusion reappears in a short time then incisions and drainage, according to Lister's directions, offer the best prospects for recovery. This latter treatment is positively indicated if the joint

communicates directly with the disease in the bone, as in such a case perforation of the articular cartilage and serious destruction of other joint tissues has taken place. During the septic stage of acute osteo-myelitis with suppurative synovitis, amputation may become necessary to save the life of the patient. In exceptional cases the same sad alternative may be required after the acute symptoms have subsided for the purpose of removing the source of exhausting suppurative discharges. Our present means of treating abscesses and diseases of joints are fortunately sufficiently advanced so that even severe cases can be safely treated on a conservative plan, and amputation must be reserved only as a *dernier ressort* in extreme cases.

In chronic cases the articular extremities are usually the seat of disease, and as there is great danger that the joint may become involved directly by perforation of the cartilage, they should receive early attention and thorough treatment. If the bone is enlarged, softened, and no external opening exists, excellent results are obtained by ignipuncture, an operation introduced by Richet. The part affected, and considerable of the surface beyond, should be prepared in a similar manner as for incision; while the field for operation is covered with a spray, the round, sharp platina point of Paquelin's thermo-cautery, heated to a white heat, should be thrust into the interior of the bone at several points, and Lister's dressing applied. If an opening exists, an incision should be made, the cloaca enlarged, and the diseased and infected tissues in the interior of the bone thoroughly removed with a sharp spoon.

If the joint has become affected by suppurative synovitis, the choice can only be between resection and amputation. The special indications of each individual case must determine in favor of one or the other of these operations.

From the frequency with which the joints become affected during the progress of this disease, our attention should be directed early towards proper management of this complication. Deformity should be prevented by appropriate mechanical support by means of splints or plaster of Paris dressings. A retentive apparatus, combined with suspension, will not only prevent contractures, partial dislocations of joints, and bending of newly-

formed bone, but will add materially to the comfort of the patient.

Should signs of pyæmia arise, our main reliance must be placed on the administration of large doses of quinine and alcohol. Luecke has obtained the best results from the administration of large doses of alcohol. Instances have been reported where two bottles of cognac were given, with decided benefit, during twenty-four hours. The patient should be surrounded by the most favorable hygienic influences, as fresh air, equable temperature, light and an abundance of plain, nutritious food. As soon as the acute symptoms have subsided, iron, especially the tr. ferri chloridi, should be freely administered. Should any dyscrasia, as syphilis, scrofula, tuberculosis or scorbutus, exist, it should be corrected by appropriate medication.

## CONCLUSIONS.

1. Spontaneous osteo-myelitis is an infectious disease.
2. It is most prevalent in damp, changeable climates, and during the winter and spring months.
3. It affects with preference individuals during the period of growth and development of bone.
4. Traumatism and other agencies, which produce a retardation or arrest of circulation in the vessels of the marrow, act only as determining causes.
5. Its primary seat is usually in the marrow of the cancellated tissue, in close proximity to the epiphysary cartilage.
6. Joint affections are frequent and prominent complications of this disease.
7. Thrombosis and inflammation of the veins of the marrow, bone, periosteum and soft parts are of frequent occurrence, and are the direct cause of pyæmia.
8. Swelling is absent for the first few days, and when it does occur, it becomes rapidly diffuse, and is attended by œdema and enlargement of the superficial veins.
9. Fluctuation is diffuse as soon as its existence can be ascertained.
10. A constant high temperature and typhoid symptoms indicate the gravest type of the disease.

11. Death may result from the intensity of the primary infection, but is usually produced by some complication.

12. Early removal of the products of inflammation, under strictest antiseptic precautions and local disinfection of the tissues, are of paramount importance for its successful treatment.

13. Epiphyseolysis may become completely repaired.

14. Excision of shaft may become necessary during the acute stage, to prevent exhaustion from profuse suppuration; this rule is not applicable if the humerus or femur is affected, on account of the impossibility of keeping the limb in position until regeneration of bone has taken place.

15. In most cases fixation of the limb is necessary for the purpose of procuring rest and to prevent deformity.

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## Article III.

On the use of Water in the Treatment of Diseases of the Skin, by L. Duncan Bulkley, a.m., m.d., Physician to the Skin Department, Demilt Dispensary, New York; Attending Physician for Skin and Venereal Diseases at the New York Hospital, Out-Patient Department, etc. Read before the American Medical Association, at Atlanta, Ga., May 7, 1879.

Water is by no means an indifferent agent as regards its influence upon the skin, either in health or disease; its right use is capable of much good, its abuse is equally capable of much evil. As it is an agent which is ever at hand, and one which instinct suggests the employment of, it is pretty certain to be used in most diseases of the skin by the laity as well as by the physician, and it is well therefore for the latter to have definite views in regard to its value when properly employed and its harm when wrongly applied.

The employment of water to the cutaneous surface may be considered in reference to its use in health as preventive of disease, and its use when the skin is the subject of disease; in the latter case it may be studied both in regard to its general use to the healthy parts and its employment upon parts affected.

In regard to the application of water in health there is little question in my mind that abundant bathing serves as a great preventive, both of cutaneous diseases and of systemic disorders, although Hebra not long ago gave quite the contrary impression in his article upon the use of baths. The skin whose dried excretions are frequently removed and whose circulation is quickened by reasonable bathing, undoubtedly is in a more healthy state and is better capable of performing its functions than one whose sluggish action is favored by neglect, and whose epidermal covering is allowed to adhere until rubbed off in a dry state by the clothing, even though Hebra does argue that skin diseases are no more common among those who may be truly said never to bathe the whole body, as is seen among some eastern peoples, than among bathers.

In health then, I regard the daily use of the cold or tepid sponge bath, followed by active friction, as one of the greatest safeguards against disease, both of the integument itself and of the system at large. In regard to warm baths, they have their function, and as a nervous sedative they may be of real service to certain persons, and when the daily tepid or cold ablution of the entire surface is not performed, they should be employed at stated intervals for the removal of effete matter from the skin; once a week, as is so commonly practiced, usually suffices. After a warm bath, a cold douche, as with a shower, or with a sponge in a pail of cold water, greatly enhances the power of the bath as a quickener of cutaneous circulation, and diminishes the danger of catching cold.

The subject of the use of the Turkish and Russian baths and their modifications in health, is too large an one to enter upon at the present time, and in a measure foreign to the subject of the paper. Suffice to say, they are continually abused in health, not only as relates to any sudden accidents which may and occasionally do result to those in peculiar conditions, but also as to their repeated use, which, like any powerful stimulant, may be and constantly is followed by a reaction whose ultimate effect may be very bad. They are not the panacea for all bodily ills, they are not the balm of life, securing immunity from disease, indeed, no small share of cases of diseases of the skin in private practice occur in those who have previously employed these steam or hot air baths to a greater or less degree. Their proper use in certain diseased conditions of the skin will be referred to later.

The use of water to the skin in its diseased state, may be considered under several heads, as follows:

1. Common water baths, including river and sea bathing.
2. Ablutions, bathings or soakings, with hot and cold water.
3. Cold and hot packing: water cure.
4. Vapor and hot air baths.
5. Medicated water baths.
6. Natural mineral springs.

1. The ordinary warm bath, as before mentioned, has for its function the removing of effete matter and softening the skin, and equalizing the circulation. It may thus have a favorable action in disease and may be used with advantage in chronic

scaly eczema, psoriasis, ichthyosis, also in lupus and in obstinate ulcerative syphilis. This warm bath has been long used by Hebra continuously in certain cases, that is the patient remaining in the water for weeks or even months, the temperature being maintained by steam or a current of hot water, the water being also changed more or less continuously. In these the patient eats and sleeps in the bath upon a proper mattrass, only leaving the bath to empty the bowels. These have been found to be of principal service in burns, pemphigus foliaceus, phagedæna, etc., as I have myself witnessed, and are of really great value. In some instances patients have remained in them for many months consecutively.

But ordinary warm water baths cannot always be advised with impunity in all diseases of the skin; acute eczema, or even more sub-acute, exuding forms of this disease will be found to be aggravated by the contact of simple water. Urticaria will also be rather irritated, as will indeed most of the inflammatory affections of the skin. It is well to remember when baths are given to a patient with a pruritic skin, to give a caution against too great friction afterwards, as this not infrequently more than balances any soothing effect of the bath, and the irritation afterwards may be very great.

In regard to river and lake bathing, the reaction and the exposure to the air will aggravate most skin diseases. Sea bathing is of service in psoriasis, and warm baths of sea water have been followed, in my experience, with very beneficial results in this disease; it is a remedy which I resort to a good deal during the summer months. But sea bathing is decidedly harmful in most cases of eczema, as I have repeatedly witnessed, although I have heard of a few instances where the disease was very chronic and the eruption very indolent, in which sea bathing was said to have cured the cases. But I am very cautious about allowing eczema patients either to bathe in the sea or to spend much time at the sea shore. The same is true of acne, and every autumn I see many, many cases where the sea influence has greatly aggravated the eruption, and many where the eruption has appeared for the first time while by the sea side; sea voyages generally act unfavorably in acne. Sea bathing sometimes is of much service

in chronic urticaria, but in most of the acute inflammatory affections of the skin its use is to be prohibited.

2. In regard to ablutions or washings and bathings or soakings with hot and cold water, much may be said. The general tendency is to bathe or wash a diseased part for the sake of cleanliness, and this will pretty certainly be done, whether the physician directs it or not, and often in a manner greatly injurious to the lesion. It is a most common practice to wash eczema, and especially do we often see the eczema of children washed diligently, often several times daily, the mothers saying that they find it "impossible to keep it clean." Now, in my opinion, an eczematous surface should be washed very seldom and that only by special direction from the physician. Nature seeks to make a protective covering with the exudate; this is continually removed by washing, the process is repeated and cure is most certainly retarded. If more time be now given for the formation of a more resisting epidermal covering, occasional washings, serving to remove superfluous exudation and thus to allow the astringent used to come into contact with the diseased surface, repair will take place more speedily. I have repeatedly witnessed eczema in children get well under the same treatment previously employed by the physician calling the consultation, when only the frequent washings were omitted.

The same is true of eczema in the adult; as an instance of the effect of water in causing and prolonging an eczema, we may mention the case of the eruption when it occurs on the hands of wash-women, or those whose occupation compels frequent wetting of the hands. It is next to impossible to cure some of these cases, as in bar-tenders, waiters in hotels, as well as wash-women without a cessation of the occupation, and just so impossible is it to cure certain cases of eczema while frequent washing is practiced voluntarily.

But washing is indicated at times, and some judgment is necessary to determine just when this should be practiced. In eczema of the scalp it is rarely best to wash the head more than once or twice a week, and here, even more than elsewhere, it is specially necessary to reapply the ointment or other dressing *immediately* after the cleansing, before the denuded surface has had time to

become again covered with the impenetrable coating which quickly forms.

Proper use of water is also of much service in certain patches of chronic eczema, when there is much thickening of the skin, with oft-times desperate itching. Such patches may be washed daily with advantage, and sometimes they will bear very great stimulation. Thus, taking the sapo-viridis and a bit of flannel and water, very sharp friction may be made for several minutes, after which the part is to be washed off clean with warm water and immediately covered with the appropriate dressing; the stimulation may even be carried so far as to use a brush, and I well remember a plasterer at Demilt Dispensary, who scrubbed the backs of the hands with a common floor scrubbing-brush and soft-soap and water until they bled. The result of this active treatment was to remove a greatly thickened eczema of many years standing, so effectually that, although he has continued his occupation and I have seen him repeatedly during the past four years with eczema on the sides of the hands and fingers, the backs of his hands, which were the seat of his severe attack and energetic treatment, have remained perfectly smooth and healthy.

Hot water is sometimes of the very greatest value in eczema. In eczema of the anus often nothing gives so much relief as holding a cloth dipped in water, as hot as can be borne, against the parts and repeating the application two or three times; the part being then covered with the dressing appropriate to the case; the same is of service in eczema of the vulva. In eczema of the scrotum I frequently direct that the part shall be suspended for a few moments in a cup of very hot water before other application is made. Simple pruritus of these parts is also often greatly relieved by these hot applications.

Chronic eczema of the palms of the hands, where the surface is hard, dry, fissured, often shiny, and the hands well nigh useless, will sometimes seem almost to melt away under the daily soaking of the palms on the surface of a basin of scalding hot water, followed by diachylon or other ointment. Eczema of the ends of the fingers and of the nails sometimes yields to this after all other measures have failed.

Onychia, both where there is and where there is not an appa-

rent eczematous element, is also very greatly benefited by these soakings in very hot water, accompanied and followed by other appropriate measures.

Indolent ulcers of the legs take on active changes and often cicatrize rapidly under the powerful stimulation of the alternate application of a cloth dipped in very hot water, followed instantly by one taken out of a vessel of very cold water.

Very striking results are often obtained from the use of hot water in some of the forms of acne. It is applied by means of a cloth, as a handkerchief, dipped in the hot water and held to the face until the heat of the cloth has passed off, when the performance is repeated two or three times for a period of not over three minutes to five altogether; a long soaking of the face in water which is not hot enough will aggravate the eruption, but the reaction following the brief application of very hot water, is often very remarkable. After multiple scarification of the pustules and papules of acne, prolonged bathing with tepid water is of service in encouraging the bleeding, which otherwise always tends to cease sooner than is desired.

In certain cases of chronic erythema, where the congestion resists other measures, the alternate application of cloths dipped in very hot and very cold water, serves to break up the capillary stasis. On the other hand, repeated washing of ulcerative surfaces will often be quite sufficient to prevent their healing; this is often seen in ulcerative syphilides, which will sometimes resist the proper internal medication as long as repeated washings are persisted in, and yields to it almost immediately when cotton batting is applied and left undisturbed. Varicose ulcers of the leg are not infrequently kept from healing by the too diligent cleansing which patients are ever ready to bestow.

3. Cold and hot packing in wet sheets, as practiced in the water cures, is of a certain value as a remedy in diseases of the skin. The results which sometimes occur, as boils on the surface, are to be deprecated, and are not, as is popularly supposed, either a good sign, or a good element in the treatment; we of course no longer believe that there is a "materies peccans" which needs to be eliminated. But the wet pack has served well in the hands of Hebra in the treatment of acute psoriasis, also in

acute general eczema. The packing is made twice daily, for for several hours, morning and evening.

This is most conveniently accomplished by placing two blankets lengthwise upon a bed, and over them a sheet dipped in cold water. The patient then lies naked upon this, which is closely folded over him up to the chin, and the blankets are then wrapped closely around, and the whole done up with bands, so that the patient is immovably fixed, helpless indeed. The first sensation is that of a pleasant glow, and before long perspiration ensues, which should be encouraged by draughts of water frequently given; the packing lasts from two to five hours. It should never be forgotten to place an urinal between the thighs of the patient before envelopment.

Under this treatment the scales of psoriasis disappear, and the red patches daily become less visible. Few patients in this country will submit to this treatment, but when it is desired to remove the existing eruption in the shortest possible time, it is of value. Packing is not of service in many affections of the skin, and should seldom be prescribed; although in the water-cure establishments all eruptions are submitted to this course. The profession need more accurate scientific information in regard to the precise effects and the therapeutic indications of this powerful remedy.

4. Vapor and hot air baths, and their modifications, may play a not inconsiderable part in the treatment of certain cutaneous diseases, although from their expense and the difficulty of their application at home, and from the fact that most of the establishments where they are administered are in the hands of ignorant, unprofessional persons, they are not employed to the extent which their real value would indicate.

While there are undoubtedly differences in the mode of action and in the results obtained from the Russian or vapor and the Turkish or hot air baths, I am not aware that any distinctive therapeutical indications between them, or effects from one more than the other have been scientifically noted in diseases of the skin. The Turkish or hot air bath, with the subsequent cold douche, is that generally preferred and undoubtedly is the safer. It is of a certain value in psoriasis, and of some service in chronic

eczema, also in chronic urticaria, lichen and ichthyosis, but the results obtained are generally rather disappointing, and I must acknowledge that I use them comparatively seldom.

Certain modifications of the steam or vapor bath are, however, oftimes of considerable aid in treating diseases of the skin. Under this head come the sulphur vapor and mercurial vapor baths, which, as is well known, have great repute in this line of practice. They consist in a steam bath to all the body, save the head, combined with sulphur or mercury volatilized by heat. The value of the mercurial bath, in many cases of syphilis, need not be dwelt upon; its use should be strictly confined to cases where this diagnosis is certain. The indiscriminate use of a mercurial or sulphur vapor bath when the skin is affected is highly reprehensible.

The real utility of sulphur vapor baths in diseases of the skin is in a measure still *sub judice*. Their anti-parasitic value is fairly positive. If well used they will cure scabies, phtheiriasis and the vegetable parasitic diseases. But even in these the irritation occasioned by them is sometimes so great that the artificial eruption produced quite masks that of the disease proper and prevents their continuance. Sulphur vapor baths are also of some value in psoriasis, and occasionally the eruption will seem to yield to them, but quite as often they are powerless, as I have frequently witnessed. Chronic, more or less generalized papular eczema, may be much benefited by sulphur vapor baths, given every other day or so; but here care must be exercised, for this very condition may be entirely caused by their use.

Mr. J. L. Milton, of London, has arranged a convenient apparatus by means of which vapor baths, with or without the addition of sulphur or mercury vapor, may be administered at the patient's house with comparatively little expense. It consists of a series of hoops over which a thin rubber or gutta percha covering is stretched, which, when the patient is seated on a chair is gathered around the neck and reaches to the ground; a second cloak of coarse flannel is placed within the rubber and over the hoops. The patient sitting naked on the chair, with the Mackintosh closely drawn around the neck, a lamp with a steam generator is placed on the floor beneath the chair; after the body has been submitted

to the steam for some minutes, if it is so desired, the sulphur or mercury is introduced on a receptacle over the lamp, placed in the centre of the pan of boiling water, and continued for a few minutes longer. By means of this apparatus steam baths may be given with advantage in a number of cutaneous affections; acne, chronic eczema, lichen, psoriasis, etc., and when it is desired, a cold dash afterward makes of it a very decent substitute for the ordinary Turkish or Russian bath, according as steam is used or simply hot air; this can, moreover, be employed in localities where these are not accessible, or in cases where it is not desirable to have the patient leave the house. I have also had used a wooden box, constructed at home, somewhat like those employed at the establishments, in which the patient sits with the heat, which may be given by an ordinary low gas stove, beneath the chair. This can be made by any carpenter and is very inexpensive.

Mention must be made here of the vapor bath or douche applied locally in acne, as recommended so largely by French writers. It consists in holding the face over a basin of standing water, with the head and basin enveloped in a blanket or other covering. This plan answers very well in many cases, and greatly relieves the congestion, but the indications for it are better fulfilled, I think, in the method of soaking the face with hot water as previously described.

5. Medicated water baths. This is a very important division of our subject, and should always be considered in dealing with diseases of the skin. Not only is this an important matter in reference to the direct action of the bath upon the *diseased* skin, but the general medicated bath is to be considered in regard to its effect upon the general health, which may be very considerably modified thereby. Experimental investigations have shown very conclusively that under the frequent use of water to the whole surface, assimilation and disintegration proceed more rapidly than without it. In certain skin diseases, therefore, where these processes are slowly or imperfectly performed, the warm bath, especially when holding alkalies in solution, does much to improve the general health and to remove diseases of the skin, even from locations which are not submitted to the bath. Thus I have found many cases of acne to make much greater and more rapid improve-

ment when alkaline baths were added to the measures previously employed; the same is true of some cases of eczema of the face or scalp.

Many ways of medicating the water to be employed in the bath have been suggested which need not be mentioned here, inasmuch as practically but few are employed in daily practice, and the indications for the use of the various kinds of baths have never been laid down with any clearness or precision; and I regret that time forbids my entering more deeply into the subject at this time.

My most common medication for baths consists of carbonate of potassa, carbonate of soda, and powdered borax, four, two and one, ounces of each, respectively, together with from one-quarter to one-half pound of starch to a bath of thirty gallons. This is a mild alkaline bath, is decidedly soothing to most skins, and acts very favorably on sub-acute eczema and urticaria; it may be used much stronger, as in psoriasis, ichthyosis, prurigo, etc. The bath is to be given at bed time, at a temperature of from 87° to 95° Fahrenheit, the patient remaining in the water fifteen or twenty minutes. On coming out, if the skin is pruritic it is not to be rubbed, but dried with a heated sheet, and all diseased surfaces are to be covered at once with a suitable ointment. I find it very grateful to the patient to have the entire surface lightly annointed with the glycerite of starch, or cosmoline, to which a small quantity of carbolic acid, five to ten grains to the ounce, may be added, if there is much general itching.

Such medication of the bath may be modified to suit certain circumstances; thus, the starch may sometimes be replaced by gelatin, a half a pound to the bath, well boiled; or glycerine, four to ten ounces to the bath, will make it more soothing to some skins. Sometimes the soda and potash prove too drying, and the quantity of borax may be increased and these diminished.

It is difficult to give in a few words the exact indications for the use of these alkaline and starch baths, but in general I may repeat that they are soothing to a pruritic skin and serve admirably to promote the processes of life. Sub-acute and chronic eczema are almost always greatly benefited by such a bath, taken at bed time, twice or three times a week, or even every night, if not too debilitating.

Sulphuret of potassium has been frequently used in baths, especially to relieve itching, but I do not employ it except as used in the artificial Barèges baths, which may be obtained at some of the bathing establishments; baths made with sulphuret of potassium should be given in a wooden tub, as the salt rapidly attacks metal lined tubs, if in a strong solution. I have seen a number of instances of cutaneous eruptions where sulphuret of potassium baths had been used to the great aggravation of the disease, and cannot give any indications for the employment of this kind of bath, although the books mention it as valuable.

Occasionally benefit will be derived from the use of other substances in solution in baths. Thus, Hebra makes very considerable use of a bi-chloride of mercury bath, in syphilis, lupus and prurigo; nitric acid, or nitro-muriatic acid baths have been used with advantage in jaundice, and also in other diseases, especially to relieve itching, and to promote cutaneous action. Sometimes vegetable substances may be added to a bath, in certain diseases of the skin, as conium, opium, etc., for a sedative effect and the relief of pain; or astringents, as oak bark or tannin, for their particular effects.

The common warm, or an alkaline bath is sometimes given with much effect after the application of tar; thus, in chronic and much thickened eczema, the part is tarred over, and the patient enters a bath, remaining there 15 or 20 minutes; this is a favorite plan with Hebra.

6. Finally, the natural mineral springs should never be forgotten in the treatment of the obstinate cutaneous affections, although their efficacy is, in my opinion, greatly over-rated. The subject is too large an one to enter upon on the present occasion and will be deferred to another opportunity. Suffice it to say here, that while mineral springs are of much real service in many diseases of the skin, their use is not to he rashly advised without a definite knowledge of what is to be accomplished; they are to be prescribed, as any other remedy, to fulfill definite indications; certain springs, while beneficial to certain eruptions, are just as surely harmless or inefficatious in others. The habit, therefore, of sending a patient to particular mineral springs simply because affected with a disease of the cutaneous surface, is as irrational

as it would be to send one indifferently to Florida, Colorado, Minnesota or the Adirondacks, because some organ within the chest happened to be diseased, without any idea of the nature of the malady or the object to be effected by the particular climate in question; or one could quite as reasonably send one to a drug-shop because sick, without giving a prescription for the remedy required.

There is certainly great need of more definite and reliable scientific information, based on recorded facts, in reference to the vast resources of our wide country in the matter of natural mineral waters, and I cannot forbear the hope that a hydrological committee may be formed in this Association for such investigation. A not inconsiderable amount of information on the subject has come to my knowledge within the past ten years and I shall hope on another occasion to collect it from my notes of cases and to present it before you. I can premise in regard to it, however, that much of it is of a negative character, for I see multitudes of patients who have received but slight or temporary improvement or have failed entirely of benefit from a wrong use of mineral waters in diseases of the skin.

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## ARTICLE IV.

### DENTAL HINTS FOR COUNTRY MEDICAL PRACTITIONERS.

By G. NEWKIRK, M.D., Wenona, Ill.

#### PART II.

*Examinations of Teeth.*—The first thing to attend to is the securing of good light. In examining the upper jaw, the rest should be so adjusted that the patient's head shall be thrown well back, the occiput on a line with or below the chin. For the lower jaw, the head should be about perpendicular with the body.

In the greater number of cases, the patient will point out correctly the location of the offending tooth, but not always. It is not safe to take his mere say-so as conclusive. There is no place in the body where reflex action is more apt to deceive than in connection with the nervous system of the teeth. A perfectly

sound tooth may be pointed out as the offender, while the real source of trouble may exist at a point entirely unsuspected. Not long since a regular physician sent his son to me for the extraction of an upper molar that was almost perfectly sound. However, a second molar of the lower jaw, on the opposite side, had a large cavity, with a nearly exposed and tender pulp. Since an operation of capping and filling here, the boy has had no further annoyance in the region of the upper molar, nor with any of his teeth.

A tooth sensitive from a congested pulp, or the mere exposure of its dentine, will almost invariably respond to one or any of the following tests: A steel instrument touching or striking it; cold air or water ejected from the point of a syringe directly upon it; the introduction of a cold instrument into the cavity of decay, or pressure made in the direction of the pulp. These tests should always be applied with such care and gentleness as not to cause unnecessary pain.

With reference to the advisability of extractions the following points should be borne in mind. It is not always a sufficient apology for extraction of an aching or sensitive tooth that it belongs to the temporary set. As a rule, the temporary teeth ought to be preserved, if necessary by some sort of plastic filling, until near the time for the eruption of the permanent. They ought seldom to be removed until the root or roots have been in great part absorbed by the encroaching crowns of their successors to be. The country physician may often be of service to his little patients by using some sort of temporary protection for the temporary molars, in children from four to seven or eight years old, and sending them to a dentist for fillings sufficient to keep them useful and in place till the time proper for their removal.

Almost never should the physician extract a permanent incisor or canine for any young person; but if the troublesome tooth be a bicuspid, and the arch crowded so there seems to be not sufficient room for all the teeth, it may be for the permanent good of the others to have it removed. The same may be said of the first or sixth year molars, and more. If these teeth show indications of decay on all sides, appearing as they often times do to partake more of the nature of temporary than true permanent

teeth, it is usually a safe course to remove them whenever they give trouble, and all the better if before the twelfth year, so that the second molars may erupt further forward and assist in closing the gap. If the removal becomes necessary, as it sometimes does, previous to the eruption of the second bicuspid, the space will be well filled, usually, by the time both this and the second molar have reached the line of articulation.

The preservation of a wisdom-tooth in the lower jaw is sometimes a matter of importance where a plate is to be worn above. A badly-decayed wisdom-tooth above is seldom fit for anything but extraction, and especially is this true where the first molar has been kept. But the middle molar should be seldom drawn by any one where there seems a possible chance of saving it, and the responsibility should be passed over to the dentist. If instead of crowded teeth there has been already the loss of some, the value of those remaining is, of course, proportionally increased, and our responsibility the greater in removing any of them. In such a case, we may observe whether the tooth in question has an antagonist in the opposite jaw; if not, and it is an upper tooth, it will probably never be of practical use for purposes of mastication. Natural teeth above are almost never used for articulation with artificial ones below, but lower teeth thus standing alone may become very valuable for use with artificial upper dentures, and should on no account be extracted where it is possible to avoid that alternative.

If the patient is wearing a plate and partial set of teeth, which he expects soon to have made over, or if he has lost so many of his teeth that the early wearing of a plate is inevitable, these may be so many arguments in favor of drawing a bad tooth upon the same jaw, and the physician, as well as the dentist, may the more readily yield under such circumstances, when solicited to extract.

Sometimes a patient applies to the physician with a troublesome root, and either a fully-developed or threatened alveolar abscess. If it be the root of a back tooth, the rule should be extraction, but not otherwise. A front root, however unpromising it may be in appearance, may be the basis for the insertion of a serviceable pivot tooth, or the fastening of an artificial crown. Present relief may be nearly always given by simply drilling through the

pulp canal to the apex of the root, so giving vent to pus or confined gases, and the case may then be sent to the dentist.

The actual development of alveolar abscess, pointing from the root of any tooth, is quite certain evidence of the death of the pulp, in whole or in part, of that tooth. Almost invariably there has been death and decomposition of pulp and nerve substance, and the resulting fluid and gaseous matter has failed to find vent through the crown of the tooth, so seeks it by the ulcerative method through the process and gum. These conditions, when present, are usually the indirect result of caries. The actual or near exposure of the pulp, the sudden changes of temperature to which it has been subjected by cold air and hot and cold fluids have induced irritation, congestion, strangulation in the minute canals through which the blood supply must come, and death. They sometimes occur, however, independently of caries, not infrequently with elderly people whose teeth have been so worn down as to subject them, practically to the same vicissitudes. In all cases of this sort, instead of resorting to extraction, a free opening should be made into the pulp cavity, for present relief and further care of the tooth transferred to the dentist.

Whenever called on to look at any tooth, the opportunity should be improved for examining into the condition of the whole set and the necessary attention any may demand earnestly impressed on the mind of the patient. This may apply to filling, separating, regulating or cleaning. The country physician should also, like the dentist, ever impress upon his patients the duty of personal care and cleanliness with regard to the teeth. It may be here remarked, the important time for using the brush is just before retiring for the night, for the germs of decay are most often planted during the period of repose.

A "bad taste" in the mouth in the morning is more usually an indication of unhealthy changes that have taken place during the night, as a consequence of *uncleanliness*, than of "liver complaint" or indigestion, though this latter is often an associate.

He may very properly advise a change of diet for the benefit of children and young persons with teeth of poor structure. If wheaten grits, the so-called "Graham," corn and oat meal were

more generally used by them the quality of their teeth would be much improved in consequence.

Let us consider next the mode of procedure necessary to the proper examination and *treatment* of a tooth.

You have your patient in a good light and proper position as hereinbefore mentioned, and we will suppose the tooth to be operated on is the right, lower, second molar. I take this for illustration because it is one often requiring attention, and is of great importance; furthermore, the saliva is here most apt to be troublesome, and, if we can succeed against it, we will hardly fail to do so elsewhere.

We will suppose the decay has begun from the face of the tooth. The size of the hole through the enamel is no sure index to the extent of decay. But there will be the opening more or less wide, bordered by the broken and irregular edge of enamel. Beyond this edge, for some distance probably, careful examination will reveal the extension of the color line, showing where decay has burrowed into the underlying dentine. You take your chisel and begin chipping away the enamel covering decay, and your first experience may be one of surprise at the ease with which it can be done. You cut away on either side of the fissure until the opening has been sufficiently enlarged for the easy introduction of an excavator. With this you proceed to remove the *débris* of dentine—whatever will readily yield—first in a direction toward the sides and not toward the pulp chamber. In working toward the latter, it will be safer for the amateur operator to use a burr. As you proceed, it will be necessary to occasionally syringe the cavity, to remove the chips and dust. Some dentists are cruel enough to use cold water for this purpose, even with sensitive teeth. You will be sure to have water about blood warm for this. You may have this very easily in any weather, by a simple contrivance. Let a tinsmith take a piece of heavy zinc or sheet iron 5x20 inches, round the corners, bend each end 5 inches down, at a right angle; tack this against any convenient upright, place a small night lamp on the lower shelf, a small tin cup on the upper, and you have an arrangement convenient for keeping water at the temperature you wish.

The pressure exerted by the mere swelling of the *débris*, or

substances forced in from without in mastication, and held by the enamel shell, will often cause uneasiness or pain. The simple act of opening up the cavity, in such a case, by relieving the pressure that has been brought to bear on living dentine, or it may be the pulp itself, will give relief, and relief that may be made permanent by the use of proper protective means. The uneasiness gone or relived, the cavity may be soaked for a few minutes with the solution of morphia in creosote introduced on a bit of the cotton or spunk; then, that removed and the cavity thoroughly dried, a pellet of cotton saturated with sandarac varnish (or a gutta-percha pellet, if thought best, warmed over a lamp sufficiently to render it plastic) inserted, and the tooth dismissed to the dentist.

Care should be used in the application of the creosote and carbolic acid, that the pellet contains no excess; and where it is to be left in for a time the surface, after introduction, should be touched with a bit of dry spunk, so that there can be no overflow upon the soft parts.

In using the cotton and sandarac varnish, or other stopping, a care should be had not to press the pellet in too tight, and not to have it so large as to protrude beyond the margin of the cavity. Better a slight deficiency than too much material.

It will not be best, usually, for the physician to attempt the removal of all the decay, only that which can be brought away easily; that which is quite firm, especially over the pulp, had better be left to the superior skill and judgment of a competent dentist for retention or removal; for in some cases it is not best to remove *all* the decay, even for a permanent filling, but rather to *disinfect* and cover in with an air-tight stopping. All the physician need do in a case like this is to relieve pressure, and open up the way for the application of a soothing remedy and a temporary *dry* stopping. It is not often difficult to keep the saliva away so that a *dry* stopping may be made, by operating as follows: Have light muslin cut in squares of four to six inches; have one of these, or two together, folded in the form of a block about one by one and one-half inches, another in a small roll. The cavity has been sufficiently cleaned and disinfected; there is enough undercut to hold the filling you wish to introduce; the

cotton and sandarac, or the gutta percha, are within easy reach—remember we are supposing the tooth to be on the right side below. Now, take the cotton block, and, with your pliers, place it against the inner surface of the tooth and alveolar ridge, and instruct the patient to hold it firmly against the gum with the index finger of the left hand. With the index finger of your own left hand you hold the roll between the ridge and cheek. You now have the tooth isolated, for the time being, from the secretions of the submaxillary and sublingual glands on the one hand and the buccal on the other. By these means you may make a dry operation even in a wet mouth, if you are not unreasonably slow. You have ready bits of spunk of proper size which you pick up one after another, insert and remove until they return dry, and then immediately introduce the stopping. On the left side below, the patient, with the same left forefinger, holds the *roll* between the process and *cheek*, and the operator the block between that and the tongue. In operating above only one roll is necessary placed between the ridge and cheek to protect from the flow of Steno's duct. The patient usually will not carry the tongue to an upper tooth when the mouth is well open, if he does he may be otherwise instructed. If the pulp is nearly or quite exposed, and the pain can be by no local means subdued, the use of creosote, morphia, clove oil, carbolic acid, hot applications, etc., all proving ineffectual, if the case be in a plethoric subject there may be a chance for relief in blood-letting or catharsis; if a nervous, the internal administration of one or two full doses of quinine, with morphia or Dover's powder, may be of speedy benefit. It must be borne in mind that occasionally the dental, like other nerves, are the seat of intrinsic pain, to be relieved like neuralgia elsewhere, by medical or surgical treatment.

Remember also this one necessity, always in operating on a very sensitive tooth, that every substance used in application shall be *warm*, neither much above nor any below blood heat. The instruments should be kept on a warm shelf or dipped in warm water before using, and the cotton or spunk, with the medicants, should be held over a lamp before being introduced. I speak of extreme cases.

If when all has been done it is evident that the tooth cannot

be saved with a live pulp, shall you extract, or in common phrase, "kill the nerve?" becomes the question. I shall here state in brief what I believe to be a few plain facts and leave you to draw conclusions regarding pulpless teeth:

1. A large proportion of incisors, canines and bicuspids, teeth with single or double canals, may be saved for a time by an ordinarily skillful dentist, whether there is an alveolar abscess or not.

2. It will involve some patience, care and trouble on the part of patient as well as operator, and he ought to so understand it beforehand.

3. In some cases there will be a *good deal* of trouble, and possibly failure.

4. A pulpless tooth has not the same promise of long continuance and usefulness, as one in which the nerve tissue remains intact yet it may do well for many years, and front teeth especially should be given every chance of salvation.

5. The difficulties are increased and probabilities of success diminished as we go backward in the arch in our attempts to save pulpless teeth, and many people are unwilling to pay for the skill, time and trouble essential to success.

I have already expressed my aversion to the use of arsenic for purpose of destroying pulps, but if you chance to employ the agent there are some points not generally understood among doctors but very necessary to keep in remembrance, regarding its application.

It should be used in the form of a paste made with a little glycerine or mucilage, and best with the addition of a morphia salt. It should be applied by means of a small pellet of cotton directly to the pulp which must be quite exposed. The least particle will be sufficient if it touches the right spot. The pellet is to be carefully placed in position and kept there by another pellet of cotton and sandarac varnish, so that not any shall by any possibility escape from the cavity. After the application, the patient should go to the dentist within a few days.

As physicians, are familiar with the use of ether, you may if you will give a sufficient quantity, enter the pulp chamber with a sharp excavator or drill, remove the pulp with a suitable burr, cauterize the nerve stumps with carbolic acid, insert a loose pel-

let of cotton and send your patient home with instructions to go to a dentist within a week.

Where a cavity of decay causing trouble in a tooth is located on one of the proximal surfaces, it will often be difficult to give it proper attention without cutting away the semicircular piece of enamel over-lying it on the face of the tooth. Frequently the decay exists high enough up so that is an easy thing to do, the shell over it being quite thin. In doing this you will only anticipate the dentist, and give yourself light *into the affected part, and room to work.* A few words as to the *manner* of *handling instruments.* As a rule, dental instruments are to be held as one should properly hold a pen, between the thumb and the first and second fingers. The "Spencerian" position, wherein the second finger drops a little below so that the pen rests upon the edge of the nail, is the best for the complete control of any light instrument. It insures steady movement, accurate touch, and sufficient force for all ordinary work. Burrs and drills are to be held with the large end in the palm of the hand which exerts the necessary pressure, while the thumb and fingers revolve the instrument from left to right.

*A Few Statements in Brief.*—There are some substances used in medicine that are very injurious to teeth, and among them are the *mineral acids* which should be given with great care, largely diluted and followed quickly with water; the tinct. ferri chloridi which should scarcely be given at all, for it almost certainly not only discolors, but roughens enamel, and acts as a strong astringent on the gums, disturbing their relation with the necks of teeth. The various preparations of mercury also produce more mischief than either physicians or their patients are aware of.

It is well to be extremely cautious in ascribing pain to a particular lesion in the tooth of any pregnant female, because such pain is apt to be entirely of a neural and reflex character.

Both physician and dentist should avoid tooth extraction, if possible, where there exists the condition of pregnancy. This state, with its important interests at stake, and its prenatal influences at work, is no more to be ignored here than elsewhere. (See Dental Cosmos, Jan. No., 1879.)

In deciding upon what shall be done in the case presented, the

physician will have often to take into account the disposition and prejudices of his patient. He has to deal with all grades of ignorance and obstinacy, and circumstances, perforce, will alter cases. He cannot always act up to the ideal standard which the dental specialist may set up. He may sometimes have to extract a tooth under protest, or take the chances of losing paying patronage, and most men under such circumstances will sacrifice the ideal—and the tooth.

If a person is obstinately bent on losing a tooth, he will find some one to apply the forceps if you do not. The "other fellow" will most likely rejoice in this opportunity for relieving a suffering fellow-creature, and besides take the opportunity to examine the man's tongue and prescribe for his "liver complaint." With the intelligent you can use reason, inspire confidence, and be conservative, but with some people you can't.

It may be that the city dentist, with a "select" patronage, who claims to seldom use forceps, will think I have given herein too great latitude to that instrument, but I am writing not for him, but for the country doctor; that man of many labors, who must do something of nearly everything; "in journeyings often," in perils of winds and waters, in "perils by the heathen," in the wilderness, and "among false brethren;" "in weariness and painfulness," in "watchings often," and cold and heat and storm.

In writing this I have had his interest constantly in my mind, with a view to rendering him some practical assistance. I have not suggested the purchase of anything but that I think will *pay* him, not merely in satisfaction, but pecuniarily. That pertaining to the teeth is but a small fraction of the work to which he has to give his attention, and whatever he has in the way of dental tools, and does in the line of dental work, must be limited to things simple and essential.

WENONA, ILL., Nov. 22, 1879.

## Article V.

### Report of a Case of Lithotomy. By A. E. Baldwin, M.D.

Read before the Military Tract Medical Society.

I was consulted June 14, 1879, by Frank Powell, a young man aged 19, in regard to his ailments. Said he had not been *well* for many years; had always been troubled the same as now, only not so severely as for the past three weeks, during which time he has been suffering severely from pain in the lower part of the abdomen, always dull and heavy in character.

Has lost flesh rapidly for the last three weeks, is now quite emaciated and anæmic.

Upon inquiry, I found he had to urinate very frequently, many times wanting to, but unable to do so. Sometimes while urinating urine would stop suddenly; felt no itching about penis, neither were the testicles retracted.

I told him I suspected vesical calculus, and suggested the use of the sound; after urging, he consented, and introducing the sound I found the prostate much enlarged. As soon as the sound entered the bladder it struck the stone with so decided a *click* that the patient heard it. The stone was apparently of pretty large size, and I advised him to have it removed. By request of the young man's guardian, I took him to Dr. J. Todd, of Galva, who fully confirmed my diagnosis. I gave the patient opiates and mild laxatives, and fixed upon June 24th, 1 P. M., for operation. As he lived some distance in the country (8 miles), arrangements were made to have the operation performed and patient cared for here at the Toulon House. Advised patient to keep as quiet as possible, and I came to town the day before hand.

June 23d.—Patient came to town; gave him at bedtime, ℥vi. (24 c. c.) of castor oil, which operated well in early morning. Ordered him an injection at 10 A. M., followed by one-sixth grain morphia.

June 24th, P. M.—Having arranged a table and covered it—as per authors—I proceeded to the operation. My assistants were Drs. D. H. Alvis, gave ether; J. F. Todd, staff holder; E. R.

Boardman and J. B. Ingals, held legs in position. Drs. R. O. Phillips and W. T. Hall were present by invitation, to witness the operation. About 2:20 commenced giving the anæsthetic and at 2:30, having placed my instruments in a chair to reach them handily, I shaved the perinæum; then made my first incision, beginning just to the left of the raphe, about $1\frac{1}{4}$ inches in front of the anus, carried it obliquely outwards and backwards, terminating it a little posterior to and about midway from the tuberosity of ischium and anus.

Second incision was made with forefinger of left hand in anus and beginning about $\frac{1}{2}$ inch farther back than first—cut quite deeply—was compelled to ligate transversalis perinei artery. Then introduced fore-finger of left hand into the wound, sought for the groove in the staff; finding it, I traced the groove as far back as I could to be sure and avoid the bulb of urethra and artery; then, pressing the nail well into groove and finger in front of rectum, I cut into the groove. Then, placing the probe-pointed knife in groove, and, giving it the same angle as the wound, I grasped the staff, pulled it well up under the arch and pushed the knife forward into the bladder.

Introduced finger into bladder over staff, then withdrew staff and felt for the stone; found it lying, seemingly, in a pouch just back of prostrate gland. Introduced forceps over finger, and, with the aid of the finger in the bladder, grasped the stone. The spread of the forceps showing that we had a very large stone, after repeated efforts of dilatation and traction, found I could not get the stone out of present opening nor crush the stone.

I then cut across the raphe, converting it into a "medio-lateral" operation, and, not succeeding then, was compelled to convert it into a "bi-lateral" by making a similar incision on right side as that on the left, not quite as long externally, and, after repeated efforts, dilating wound and turning the stone, I succeeded in removing it. I then washed out the bladder with tepid water, and, as there was some oozing from the wound, washed out the wound with ice water, and had patient conveyed to bed—previously prepared and well covered.

The stone was oblong, rough and warty, about 6.5 ctm. in

length, 5 ctm. in breadth and 3.3 ctm. thick; weighed about 3 oz. Patient lost 3 to 5 ounces of blood.

7 p. m.—Found patient in considerable pain and a little feverish; ordered him pills of morph. ($\frac{1}{4}$ gr.) as often as necessary to keep him easy. Washed wound and dressed it with carbolized sol. (1 to 60) after anointing buttocks with olive oil to prevent irritation.

June 25th a. m.—Pulse, 92; temp., 37 2-5°. Says he is very comfortable. Treatment continued, with patient taking milk 60. every two hours.

P. m.—Pulse, 88; temp., 37 4-5°; resting well; has not had morph. for several hours.

June 26th.—Was called up during the night to draw off the urine, which I did by introducing catheter through the penis without any serious pain; provoked a little flow of blood from wound.

7 a. m.—Pulse, 90; temp., 37 1-5°; patient prospering nicely, and everything favorable.

1 p. m.—Pulse, 110; temp., 40°; skin hot; feels well; only lame and head aches. Ordered cinchonidia sulph. 0.4 every $1\frac{1}{2}$ hours.

3 p. m.—Pulse, 122; temp., 41.5°; skin very hot and dry; abdomen tender and swollen; has had chills twice. Tongue coated and dry; nervous, restless and delirious; continued treatment with addition of

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|---|---|---|---|
| ℞ | Tr. aconit. rad..... | | 26 |
| | Pot. chlorate..... | | 66 |
| | Tr. opii..... | 1 | 33 |

M. Sig. In syrup every hour as long as necessary.

7 p. m.—Pulse, 110; temp., 40°; some improvement.

11 p. m.—Pulse, 85; temp., 39°; skin somewhat hot but moist; says he is comfortable, but tired. Throat somewhat sore and dry; thinks he can sleep.

June 27th—6 a. m.—Pulse, 85; temp., 37.6°; patient rested well; throat feels better; skin and tongue moist; abdomen better, only complains of being tired.

11 a. m.—Pulse, 84; temp., 36.7°; skin moist; has eaten crackers in milk.

6 p. m.—Pulse, 85; temp., 37.9°.

10 p. m.—Pulse, 82; temp., 37.3°.

June 28th—9 a. m.—Rested well during night; urine comes through wound again. Pulse, 80; temp., 37.3°; tongue cleaning; not much swelling about wound.

2 p. m.—About same; ate oysters to-day.

9:30 p. m.—Same. Ate some chicken.

June 30th.—Gave injections and removed a large amount of fæcal matter.

July 3d.—Water began coming through urethra again; wound healing very fast; continued to dress with carbolic wash. Continued to improve and the 11th of July patient was discharged, wound all healed. Has gained eight pounds since operation, (had lost twenty-six in the five weeks previous to operation.)

July 19th.—Heard patient was doing light work; gaining fast.

Dec. 15th.—Heard from him a few days ago. Says he is perfectly well; weighs more than ever before, and can do as much work as any man in the country.

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THE AUDIPHONE.—Frequent inquiries regarding this much-vaunted invention induce me to state that Messrs. Sharp & Smith of this city have been carefully testing the audiphone for several weeks, but thus far they have not found patients benefited by it. Out of one hundred and fifty successive cases of deafness, in which they have given it a trial, they report that not a single one has noticed any benefit in its use.—E. FLETCHER INGALS, M.D.

PROF. SARAH HACKETT STEVENSON having been obliged to ask for a year's leave of absence from the Chair of Physiology at the Woman's College, Prof. F. L. Wadsworth has kindly consented to supply her place for the present session, and we may add that his course of instruction is giving very great satisfaction to both class and faculty.

# Clinical Reports.

## NOTES FROM PRIVATE PRACTICE.

### ARTICLE VI.

*My Struggle with a Tape-worm.*

Tape-worms are, comparatively speaking, quite a common affection in most parts of the United States. Probably every practitioner of medicine has been called upon to treat more than one case of this, sometimes, troublesome disorder, and having successfully removed the worm, pins his faith to whatever drug he may have used. The removal of a tape-worm creates quite a little sensation among the friends of the party thus relieved, and the fortunate doctor finds his office besieged by a crowd of curious people and gains quite a little notoriety thereby. It is not then to be wondered at that on attempting a second time to dislodge one of these pests, he recalls to mind his former success, and tries as nearly as may be to follow the same plan of treatment

That the doctor's efforts are usually crowned with success is true, but it is also a fact that in many cases the results are very unsatisfactory, and the patient becoming weary, after repeated trials, calls another physician. This is apt to make a young practitioner feel somewhat discouraged, and it is additionally disheartening if the case happens to fall into the hands of some one with whom he is not on friendly terms, who secures the prize and gains credit through his failure. My struggle with a tape-worm will perhaps be of interest to some of my brother practitioners, and, I trust, suggest to them a readily accessible, though not a new plan of treatment.

A lady called at my office to consult me in regard to her little girl, about seven years of age, who had been complaining for

several months. She explained to me that one or two doctors in the city had prescribed for the child several times, but their medicine seemed to do her no good—in fact, she was growing weaker every day. The little girl was very slender, and her face wore an anxious expresssion; her appetite, the mother informed me, was ordinarily very poor, though at times she ate ravenously. For about a week her bowels had been quite loose. "What was the character of her passages?" I asked. "Oh, I did not notice particularly," she replied, "only occasionally pieces of something white, like curdled milk; she is very fond of milk." The stools were examined, and links of tænia discovered. The parents were very much alarmed when this was made known to them, and were anxious to have that "awful thing" taken away as soon as possible. This I promised to do.

It having been some time since I had had a case of this kind to treat, and wishing to proceed against this hidden foe in as scientific a manner as possible, and according to the latest and most approved methods of warfare, I selected from my library several works which I knew treated to a greater or less extent on this subject, and settled myself to a thorough examination of them. I threw all former views to one side, and, wholly unprejudiced, searched earnestly and anxiously for the drug which was to cause this trespasser on private grounds to move on.

I first took up "Stillé's Materia Medica," and turning to the index of therapeutics, under the heading of "Tænia" I read: "acidum sulphuricum, æther, antimonii et potassii tartras, brayera, chenopodium, filix mas, granatum, kamula, oleum olivæ, oleum tiglii, pepo, stanni pulvis, tanacetum, turpentine."

I must confess to a feeling of faintness at sight of such long list of ammunition from which to select. To my mind this array included some articles as powerless as a blank cartridge, and others which, comparatively speaking, were like a charge of dynamite. However, I read what Stillé had to say in favor of each drug, and coming down to filix mas I came across this sentence, "Male fern and its preparations are almost exclusively used for the cure of tape-worm." I kept my finger on this and finished the list. Stillé's remark in regard to male fern haunted me. If this drug was used "almost exclusively" it must be the best, and if it was

the best then had I found what I was in search of. But ever careful to be in the right, I opened Ringer's Therapeutics to learn his opinion, and found "Male fern is generally considered the fittest treatment for tape-worm."

Not yet satisfied, I turned to "Diseases of the Intestines and Peritoneum," Wood's Library, and here Ransom had written, "The male fern is perhaps the oldest and most widely known vermifuge, and of late has grown into much favor." Bennett in his Clinical Lectures said, "Of all the vermifuge remedies proposed for the expulsion of tape-worn, I have found the male shield fern the most effectual." Speaking of this drug Phillips (Materia Medica), wrote, "Its value in cases of tape-worm can hardly be overestimated." And Watson in his "Practice of Physic," "But the best and most trustworthy of all, in my judgment, is male shield fern." What more could I want? All these writers pronounced the same verdict. I was satisfied, but espying Flint's "Practice of Medicine" in my book-case, I took it down and found him testifying as follows: "The male fern is a tænifuge, the efficacy of which rests upon the testimony of many observers of large experience. In my own experience it has proved promptly efficacious." Already decided in favor of filix mas, this added testimony made me only the more firm, and I immediately resolved to clear the ground for action.

Having read in some of my books that, if I would make the result doubly sure, I must starve the patient for a few days, I put the little girl on the lightest known diet, viz: beef-tea. I at first thought of putting her on a water diet, but wishing to give the male fern a fair chance adopted the beef-tea. I permitted her to have nothing else to eat for forty-eight hours, and on the evening of the second day gave the famished child a full dose of castor oil. The following morning, not allowing her any breakfast, she was given a dessert-spoonful of an equal mixture of the liquid extract of male fern and mucilage. Learning that the stomach tolerated this dose, and feeling confident that now, having followed directions to the very letter, the enemy would not be long in showing the white flag (himself), I was happy, and going to make a call on an especially aggravating chronic case, I surprised this patient by my unusually jovial disposition. Returning to our little

friend about four hours after the first dose was taken, and finding no apparent result, I gave a second dose and laughing away the doubts of the parents, told them to let me know when the tape-worm had passed.

In the evening the father called at the office and said that, with the exception of one important county, the returns were all in. I told him it was most too early to expect returns from back counties. He went home. As nothing resulted from this effort, I told the parents that possibly the medicine was not quite so fresh as it might be, and they should let the child resume its regular diet, and we would try again in a few days. I also prescribed a tonic mixture to be taken three times a day.

At the expiration of two weeks I repeated the procedure, with precisely the same result. This was certainly disheartening. The little girl looked as though, after due consideration, she had decided to keep her tape-worm. I was afraid to increase the dose or even try again, lest I should be under the painful necessity of making an autopsy to obtain my specimen. I had lost faith in filix mas. However, I assured the anxious parents that, being satisfied the mild means we were using were not going to have the desired result, we would have to resort to something different.

Fresh pumpkins were coming into market; procuring one of these, I had a part of the seeds deprived of their outer envelope and beaten into a paste, with fine sugar. Three weeks after the last attempt, the child was permitted to eat as much of this paste as it could be induced to take, without any previous preparation whatever. The day following I received word from the mother that the worm was being passed, and wanting to know what she should do. I replied, "Let it pass." In the afternoon the father came into the office, looking pale and haggard; he seemed older by ten years than when I saw him the day before. He grasped the back of a chair for support, and appeared to be laboring under some terrible shock to the nervous system.

"Why, my dear fellow!" I exclaimed, "what is the matter; what has happened?" He raised his eyes to mine for a moment, and dropping them, said, in a voice shaking with emotion, "It is gone." "Gone!" I cried; "what, the child?" He glanced

quickly up at me, and with a faint smile playing over his countenance, answered, "No, the worm."

And so it proved; the tape-worm had changed its mind, and not being pleased with its cool reception, had drawn its long chain of white links back into the child's intestines. But another hearty meal of the pumpkin seed paste brought away the intruder, head and all. And ere long, lest he should escape us a second time, we had fifty feet of tænia solium floating peacefully in equal parts of alcohol and water.

G. B. PRATT, M.D.,
*Late Resident Physician of the King's County Hospital, Brooklyn.*

ELKHART, IND.

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SALICYLATE OF IRON.—Dr. Wallis White (*Glasgow Medical Journal*, Aug., 1879) prepares the salicylate of iron by dissolving together sulphate of iron 1.6 grams, salicylate of soda 2.00 grams, and acetate of soda 1.3 grams, in 30 grams of water. The solution has at first a pale port-wine appearance, which darkens on exposure to the air; it has a pleasant taste, and 30 grams contain 2 grams of salicylate of iron. Its primary action seems to be to promote secretion, stimulating the skin. It does not constipate the bowels, but rather corrects the alvine secretions. As a prophylactic against septicæmia after surgical operations it is valuable. It promotes perspiration, cleans the tongue, lowers the temperature, and reduces the pulse. It may be administered with freedom and in large quantities in cases of anæmia, without interfering with digestion. In skin diseases also, and in desquamative nephritis where the digestive organs have become weakened, and a salt of iron is indicated, its powers are very marked. Salicylate of iron seems to combine the astringent powers of the iron, but in a minor degree to the sulphate or perchloride, with the antiseptic, antipyretic powers of the salicylic acid. If the preparation is long continued, some of it passes out unchanged with the urine.—*Practitioner*, Oct., 1879.

# Domestic Correspondence.

## ARTICLE VII.

### PHILADELPHIA LETTER.

*Messrs. Editors:*—At the time I write the activity of the medical profession in this city appears to be chiefly displayed in the form of lectures at the colleges and hospitals and in public and private practice. But few papers of general interest have been read before our various societies during the autumn and not many articles have been published in our local journals of such a character as to deserve special mention. It may be supposed that the energies of our working men have been expended in the hospital ward, the laboratory and the studies, and that the fruit of their labors is to appear later in the season. Among the papers of most general interest which have been read at our societies during the past six months, are two which are worthy of notice. The first of these was a paper by Dr. Albert H. Smith, one of our best known gynæcologists, on "The Uses of the Hot Water Douche in Parturition," read before the County Medical Society. Dr. Smith is inclined to the belief that hot water possesses the power of absolutely controlling hæmorrhage from small open vessels and from oozing surfaces in cavities where continuous irrigation can be kept up with the temperature of the water maintained at 110° to 115°, and this without aid from the muscular contractility of the tissues. In order to obtain the benefit of the hot douche in hæmorrhage in pregnancy, the free and unobstructed play of the muscular contractility of the uterus is first required and next, especially, free access of the stream directly to the bleeding surface. The uterus must first be emptied. No special apparatus is required; an ordinary Davidson's syringe,

a fountain or bag syringe, or even a rubber tube, which every country practitioner should carry with him for many useful purposes, may be employed.

The hot water douche may be employed (1) to relax a rigid os and hasten the first stage of labor. (2.) To produce prompt and vigorous condensation of the uterine walls after expulsion of the fœtus. (3.) To arrest hæmorrhage from laceration in the passage of the child through the pelvic canal. I wish I could give a further account of this paper, one of the most practically valuable which has been brought out by the general interest in hot water as a hæmostatic that has prevailed during the past year. Any of your readers who, not having seen Dr. Smith's paper, would like to read it in full will find it in the *Philadelphia Medical Times*, Vol. IX, 1879, p. 541.

Scarcely of less interest is the paper of Dr. John B. Roberts, read before the same society, on "Paracentesis of the Pericardium." Dr. Roberts considers this operation not only advisable but necessary in many cases of cardiac trouble accompanied by effusion and as not at all difficult to perform. His paper has called forth much comment and he has been supported in his views by Professor Pepper in a paper published in the October number of the *American Journal of the Medical Sciences*. Within a week or two Dr. Roberts has published a monograph with the same title, giving the results of the latest experience in this operation.

Although the journals have not recently teemed with papers by Philadelphia men, yet this has not been an idle year and the number of new works of value and of new editions of old works has not been small. Agnew's great work on surgery, the first volume of which appeared near the close of last year, is approaching completion and in wealth of information, particularly of a statistical sort, is without a peer in works of its kind, though in beauty of style and literary arrangement it is not equal to others. Professor Ashurst, who is Professor Agnew's colleague in the university, occupying the chair of clinical surgery has just brought out the second edition of his "Principles of Surgery." Professor Harrison Allen has long been engaged on a work on anatomy, of which Dr. Shakspeare has written the histological introduction. This *opus magnum* is at length to see the light,

as I believe it is to appear early in the year. Those who know Professor Allen's painstaking, laborious and thorough method, expect the appearance of this work with great interest, and confidently hope for a volume which will add to the credit of American medical science in a field hitherto left uncultivated.

Professor Duhring's "Treatise on Diseases of the Skin," which has for some time been out of print, is about to appear in a second edition, revised and brought up to the most recent standard of knowledge of these affections, and of course necessarily enlarged. Duhring's "Atlas of Skin Diseases," a production of permanent value, in which the profession of this city feel a certain pride, not unwarranted by the character of the work, continues to appear in parts from time to time, and is, I believe, a little more than half way to completion. In a very different class must be reckoned the series of "Health Primers," of which various volumes, under the editorship of Dr. Keen, and chiefly written by Philadelphia men, have been making their appearance during the last six months. Although these works are written in a popular style, they contain much of interest and instruction for the medical man, and are not to be tossed lightly aside as unworthy of serious notice. In this respect they compare favorably with the primers of a similar sort issued in England, one of which lies before me as I write, which it would not be too much to denominate trashy. Some of Dr. Keen's "Health Primers" have been written by specialists of standing, and those of Dr. Burnett on the ear, Dr. Harlan on the eye, and Dr. J. W. White on the teeth, may be confidently recommended as containing just the sort of information on these special organs which specialists alone can give, and which is hardest to obtain without going more deeply into these subjects than the average doctor's time will allow. We of the profession must be alive to these points, or we are apt to be caught up and our ignorance exposed by clever laymen who have gained the latest fruit of modern science from these little manuals. I dare say, however, that many of your readers have seen the "Health Primers," for their sale has been enormous, and the publishers, I fancy, have reason to bless the day when their enterprise was undertaken.

One more Philadelphia book of recent date may be mentioned

which has gained great success—that is, Stillé and Maisch's "National Dispensatory," of which the second edition is rapidly passing off, although scarcely half a year has elapsed since its first publication. To one of its authors, Professor Stillé, this work is peculiarly honorable, because it has been undertaken and carried through at an age when most men have laid aside their more laborious occupations and are beginning to enter into the rest which they have earned by their labors, and to enjoy whatever laurels they may have won. It is now about a year, I think, since Professor Stillé handed in his resignation to the trustees of the University of Pennsylvania, and was about to retire from the Chair of Practice which he has filled so well for the last seventeen years, when he was induced, by the strenuous efforts of the students and alumni, together with the friends of the institution, to remain during a somewhat longer period. The reason assigned for Professor Stillé's resignation of his important position, when to all appearance he was at the height of his usefulness, seems to have been a certain resolution, made many years ago, to the effect that when he had reached a certain age, sixty-five I think, he would retire, although he might be in the enjoyment of all his faculties. The origin of this self-sacrificing resolution is, I venture to think, to be found in a certain yellow and discolored pamphlet, dating somewhere about 1832, and containing a vigorous protest against the retention of the Chair of Materia Medica in the university by the then occupant of that position. This protest was signed by a committee of students, at the head of which appears the name of Alfred Stillé. It sets forth in forcible language the grievances of which the unfortunate occupants of the benches were the sufferers, stating that although the subject which Professor C—— was supposed to teach was materia medica, yet a number of his lectures were occupied with a discussion of Galen's views on the anatomy of man, as derived from dissections of monkeys. Moreover, when at last the true subject of the lectures was reached, no allusions were made to writers of a later date than Dioscorides and Avicenna, as the venerable professor considered all discoveries of a later date as vain, trifling and of little account. Moreover, it was added, if my recollection serves me, that age had so far impaired the utterance of the pro-

fessor that but little of what he said could be heard even by the acutest ear. However, as the chair was at that time worth some $10,000 a year to its holder, the superannuated occupant was removed with difficulty, and I suppose that the memory of that student experience caused Professor Stillé to resolve not to dim the luster of his reputation by lagging superfluous on the stage. That he is far from even the beginning of a decline of his powers is seen in the work which he has just completed, to which allusion has been made, and that he may long be spared to adorn his chair is the fervent hope of all friends of the university. The Jefferson College has sustained a severe loss in the death of Dr. J. Aitkin Meigs, professor of the Institutes of Medicine. Professor Meigs was known to the scientific world generally rather as an ethnologist than as a physiologist, having written little or nothing upon the latter subject. As a lecturer he was deservedly popular, on account of the earnest eloquence of his style and the abundant illustration which he introduced into his lectures. He was the first lecturer in this city, and one of the first in the country, to introduce vivisectional illustrations. Although bearing the same name, yet he was in no way related to the other physicians of the Meigs family who have practiced in Philadelphia for several generations. It appears, by the way, to be one of our characteristics to produce successive generations of medical men of ability. Charles D. Meigs was the famous obstetrician and rival of Hodge of fifty years ago. John F. Meigs, his son, is the joint author with Professer Pepper of the well-known "Meigs and Pepper on Diseases of Children;" while a grandson of the family is a well-known practitioner.

A new society has recently sprung into existence, called the "Academy of Surgery." Professor Gross is believed to be the originator of this association, which is to be very select, only numbering some thirty members. I hope to be able to inform your readers further regarding this and our other societies at some future date. PHILA.

Dec. 17, 1879.

## Article VIII.

### Japanese Surgery and Medicine.

*Messrs. Editors :*—I made an attempt, some time since to learn the state of surgery and medicine among the Japanese. The effort did not yield very brilliant results; yet the ideas of such a people are always of interest to thoughtful men, and are worthy of consideration in the study of human progress.

My information is derived partly from portions of an illustrated native Japanese work, translated for me by a lady, long resident in Japan, and partly from the kindness of Dr. H. Foulds, Physician of the Fukiji Hospital, in Tokio.

A favorite Japanese medicine for diseases of the alimentary canal is prepared by the tribe of Ainos, in the great island of Yezo, in the north part of the empire. These Ainos are a race of heavily bearded men, surrounded by the half beardless Asiatic races. Many ethnologists declare that in features and in physical structure they belong to the Caucasian race; but no one knows how they came to be flung off among the Mongolians, so many thousands of miles from the rest of the stock. However this may be, they were the aboriginal inhabitants of the whole of Japan, but about six hundred years before Christ they were invaded and driven north by the present dominant race of the empire, so that the Ainos are confined to the island of Yezo, and are only about fifty thousand in number. They pay a tribute of seals to the Japanese government, which they catch in the following curious manner: A decoy is made by taking a small float and erecting a sort of plume or bush upon it, which looks like a fox's tail. Three men go softly out in a canoe. One paddles the craft, another lets the float out with a string, which drifts away on the water, the third stands with a bow and arrows. The plan is to "toll" the animals. The seals, seeing the plume waving above the water, get their curiosity excited, much as the western antelopes do when "tolled" on land by an analogous device, and come swimming toward the plume. The man in the canoe draws the float gradually toward him, with the seals

following it, until he gets them near enough to be shot by the archer.

The inland Ainos, however, are the ones who manufacture the popular medicine above referred to. They hunt female bears by first catching the cubs, and using them as decoys to catch the mother. They then take the heart, lungs, kidneys and liver, and, if I understand them rightly, make a sort of sausage meat by chopping them all up together, gall bladder included, and drying it in cakes. This is purchased as a medicine all over the empire, and is taken by simply cutting of slices and eating them. It is said by the patients to be "very bitter, like the gall of a chicken."

The aboriginal Japanese surgery was very rude, and had no anatomical knowledge as a basis. They used the moxa; and our word is simply a modification of a China-Japanese word for the same thing, viz., "Mō-hŭsa."

They bleed, and use a style of lancet supposed to be derived from the old Dutch traders two hundred years ago. Syphilis was known and described three centuries ago, but it is not clear what the most ancient treatment was. It is certain, however, that foreign surgeons found them not long since using enormous doses of mercury, so that the deleterious effects of the drug were very common.

Their peculiarly tough and porous paper is very valuable in surgery. Dr. Foulds uses it for bandages, wrappings, compresses and absorbents, as well as for holding antiseptic applications, and also for sponges and towels.

The doctor thinks the utter ignorance of anatomy shown in Japanese medical works is due to the horror of taking animal life inculcated by the Buddhist religion, by which investigators were prevented from even dissecting inferior animals to obtain light on human structure.

On the whole, the Japenese do not seem likely to furnish any valuable new ideas in medicine or surgery, but the flora of their country is extremely rich and varied, and it is probable that a thorough and skilful examination of their native plants would furnish useful additions to our materia medica.

EDMUND ANDREWS, M.D.

# Reviews and Book Notices.

Article IX.—Hygiene and Public Health. Edited by Albert H. Buck, M.D. New York: William Wood & Co. Two volumes. Octavo.

[Concluded from page 655, Vol. XXXIX, No. 6.]

The second volume is opened by a lengthy paper by Dr. Roger S. Tracy, of New York, on the "Hygiene of Occupation." This treats of the various diseases which are produced by different trades and occupations. Among the diseases produced by chemicals is noticed a curious eczema which is caused by sulphate of quinine. In the great factory of Powers & Weightman this eruption occurs in about 90 per cent. of the new workmen, three months after entrance. "The majority are only affected once, while others have two or three attacks. Some cannot become accustomed to it. It is exceedingly rare for any one to have it if working in the dry materials. The vapor from boiling solutions seems to be the chief cause." The bearing of this upon the mode of action of vegetable organic matters that are highly nitrogenized, and operating in connection with heat and moisture, hardly needs comment.

Our author finds that "fat-renderers, lard-refiners, bone-boilers, glue-makers, fertilizer-makers, pork-packers, soap-makers, oil-pressers and cheese-makers are exposed to offensive gases, but, so far from suffering in health on that account, appear to be actually benefited." Scavengers, also, "are in general a healthy class of men;" all of which corresponds exactly with our experience in Chicago. Physicians are credited with a very high rate of mortality. "In England the average age of physicians at death is given as 45. Old physicians are rare."

The Hygiene of Camps forms the subject of a valuable paper by Assist-Surgeon Charles Smart, U. S. A., an author who has written an interesting essay on "Malarious Waters and Mountain Fever," published in the *American Journal of Medical Sciences*, Jan., 1878. He naturally recurs to the same line of thought when treating of the water-supply and diseases of camps. By a long and laborious train of chemical research, associated with attentive clinical observation, the doctor succeeded in tracing a connection between mountain fever — which is essentially a malarious fever — and an excess of "organic ammonia" in the water used by the patient. This "organic ammonia" is of course, in the trackless wildernes of the West, derived from the decomposition of vegetable matter. Washed from the air by rain and snow, even the mountain snow-water yields an appreciable quantity of the impurity. It is this water and the resulting spring-water, which causes the fever, "an adynamic remittant, for which the writer has suggested the name of *aquamalarial* fever." Thus far the author's discussion of malaria is quite unobjectionable, but in a subsequent portion of his essay he resumes the subject (pp. 145, 147, Vol. II.) and discourses of malarious germs in a manner that fills the thoughtful reader with astonishment. The doctor presents, as illustrations of diseases caused by air-borne vegetable spores, autumnal catarrh and rhus-poisoning, while cholera and typhoid fever are connected with specific germs, and malarial fever is to be in like manner referred to the action of vegetable germs. He believes "that certain germs exist and multiply in the decomposing vegetation of the soil, * * * and that when these find their way into the system and there meet with the vegetable tissues susceptible of the stage of decomposition which is native to them, they increase and multiply, developing according to circumstances, the various grades of malarial disease. * * * It is only in the alimentary canal that the malarial germs can find that fermentable vegetable matter which is necessary to their development. And as this supply of vegetable matter, susceptible of a certain decomposition, is not continuous in the system but intermittent, we have a hint as to the origin of one of the singularities of malarial disease," etc., etc. (pp. 146–7, Vol. II).

The above quotation affords a fine example of the charmingly inconsequential logic which carries captive the devotees of the germ theory. Let us analyze a little. Hay fever and rhus-poisoning are caused by the action of vegetable spores; but the action of the spores in those diseases is upon the surface of the body, and is of a directly irritant character, producing local inflammations. Spores are very tangible things, and the spores of all plants are likewise tangible and traceable. If now malaria is caused by vegetable germs, those germs must be spores of some kind. But in malarious diseases we can discover no evidence of inflammatory action upon either the inner or the outer surfaces of the body. If the intermittent paroxysms of fever are due to intermittent growths of cryptogams in the intermittent supplies of vegetable matter which enter the alimentary canal, the paroxysms should occur as often as the meals—but they do not; nor is there a particle of evidence of any peculiar cryptogamic intestinal vegetation in malarial fevers. The microscope does not reveal the presence of any such parasites in the fluids or cellular structures of the body. As for invisible growths and invisible germs we have no right to assume their existence as long as other hypotheses, based on actual observation, are sufficient to cover the ground. Our author seems to admit that his malarial germs may contribute to the living processes of the leaves of plants. But vegetable cells do not feed on other living cells; they consume inorganic and dead organic matter, but they are not known to absorb living germs. If vegetable spores and germs are the cause of malarial fever, there is no reason why human beings should ever become acclimatized. Spores and seeds will grow wherever they find warmth and moisture, such as the liquids of the human body always afford. Accordingly, the victims of hay fever and rhus-poisoning always suffer with each recurring crop of spores. But when disease is caused by substances which are capable of mingling, in the form of liquid or gaseous non-living matter, with the plasma of the blood, and when such substances enter the living cells, those living structures at once experience a modification of nutrition. This modification of nutrition constitutes the disease. If the disease were caused by the presence of vast numbers of living parasites in the liquids of the body, competing with the

native cells for place and for food, the characteristic phenomena should be those which belong to embolism and to starvation. But there is nothing of the kind. The phenomena are those which belong to alterations of nutrition causing alteration of the functions of the natural cells. To this kind of change all the symptoms of infective diseases can be referred. As for "germs" too small for detection, we can know nothing of their natural history. We can only infer their presence from the consequences which should follow their introduction into the system. Since those consequences are mere perversions of the natural functions of the living cells, and since those functions are dependent upon the quality of the nutriment which is supplied to the cells, and since that nutriment always reaches the cells of the body in the condition of non-living, unorganized matter, it follows that the infective matters which excite infective diseases must be in that condition. They cannot be germs, alive and capable of indefinite multiplication. The living cells of the body are the only germs in the case; those cells always exhibit a tendency to adapt themselves to changes of nutriment, so that after a time they may exhibit a certain degree of healthy function, even though the blood be still contaminated by malaria. This we call acclimatization.

In accordance with this hypothesis it becomes very easy to see how malarial diseases are so largely dependent for their evolution upon changes of temperature and moisture. The cells of the tissues may only be so modified by their malarious diet that they can still perform their ordinary functions until the additional disturbances implied by fatigue or the action of damp night air, are superadded, when their equilibrium is completely overthrown and the phenomena of active disease appear. Quinine and other anti-periodics then become useful, not because of "germicide" properties, but by reason of their favorable effect upon the nutrition and defecation of the cells which are the seats of disease.

With these criticisms we will pass by the remainder of Dr. Smart's valuable paper — valuable in spite of its defects — and will call the attention of the reader to an essay on the "Hygiene of the Naval Merchant Marine," by Dr. Thomas G. Turner, Medical Director, U. S. N. Having seen considerable of both branches of the service, we can testify to the accuracy of the author's

observations. His paper calls attention to the great hardship and danger which is produced on shipboard by crowding, dampness, improper diet and foul air. It seems, indeed, as if the sailor were compelled to encounter everything that ignorance and despotism can devise for his harm; and all growing out of traditionary errors on the part of non-medical officers regarding the essentials that are requisite for health and discipline. Dr. Turner's essay is so good and leaves so little to be desired, that it is with a feeling of real regret that one finds its closing pages disgraced by a miserable fling at the clergy for their philosophical position regarding the social management of syphilis. The doctor is evidently very much under the influence of the bias of position, and, like too many other narrow specialists, has not yet learned to examine this subject with the eyes of a philosopher. The whole paragraph should be omitted in future editions of the book.

The most interesting essay in the entire work is the paper on the "Hygiene of Coal Mines," written by Henry C. Sheafer, Esq., "Coal Editor" of *The Miner's Journal*, Pottsville, Pa. The author places before his readers, in a series of pen-pictures, the life of the coal miner from his earliest childhood at the pit-mouth till, prematurely bent with age and breathless with asthma, he sinks into the grave. It is one of the most satisfactory sketches ever presented to the medical public, quite overshadowing the excellent supplement on the "Hygiene of Metal Mines," furnished by Rossiter W. Raymond, Ph. D., editor of the *Engineering and Mining Journal*, published in New York City.

Following these interesting papers is a contribution to the hackneyed themes of "Infant Mortality and Vital Statistics," from the pen of Dr. Thomas B. Curtis, of Boston. The wise conclusion to which the author finds himself carried, is that "the chief agencies at work to bring about the excessive mortality of infants are the ignorance and poverty which prevail so extensively among certain classes of all urban populations." For the relief of this, "reliance must be placed chiefly upon the philanthropic exertions of charitable associations organized for the express purpose of assisting parents to understand and carry

out the approved rules of infantile hygiene." And yet, it is not probable that even in this way would it be possible to effect any abiding change in the average results, for, as De Candolle and others have long ago said, the favoring conditions that are furnished by the organization of public and private charity "enables the weaker individuals to get along in life and to marry, whence results the generation of a stock of congenitally feeble infants. * * * In a high state of civilization such as is attained in the great cities of the present age, conditions of life exist which actually reverse the ordinary processes of natural selection and bring about the survival of the (physically) unfitted. These are enabled to live, to marry and to procreate; but their offspring, inheriting feeble or diseased constitutions, are necessarily short-lived."

Dr. Curtis' paper is full of suggestive material; but, like the majority of such writings, it in many particulars fails to go to the bottom of things and does not bring to the light those broad generalizations which sanitarians so persistently avoid.

Mr. Stephen P. Sharples, of Boston, Mass., contributes a brief compendium of the methods to be employed in detection of the adulteration of food. His testimony indicates the extreme difficulty which attends the effort to suppress such adulterations by statute law and also serves to encourage the belief that, after all, we are not in such danger from adulterated food as the professional alarmists would have us believe. He admits that "there has been no definite line laid down between good and bad meat." In fact, were there no competition between rendering establishments or fertilizer factories, we should hear very little about the existence of "emaciated beef," etc. that is unfit for food Eighty per cent. of the meat sent to the London market is the subject of tubercular disease, and, "to exclude it from the market would leave London without a meat supply." (*Brit. Med. Jour.*, Oct. 25, 1879, p. 647). As for milk, it is well known that water and burnt sugar are the only dangerous substances that are intentionally added to the fluid. When the milkman sells his watered milk for two cents a quart, while the pure article costs five or six cents, he is only gratifying that instinct of human nature which found expression in the sage

remark of the small boy, aged five, when his sister, aged three, undertook to remonstrate in an uproarious manner against the limited area of the pool of maple-syrup which had been deposited near the center of her plate by a careful parent. "Spread it, sister, spread it!" exclaimed the young philosopher, as he proceeded to apply a layer of sweetness to the entire upper surface of his own plate and to the greater part of his countenance as well. Children—and the majority of grown people are only children written large—like to get something bulky and showy when they invest their money. They would rather have a silver dollar than a gold dollar any time, even if it is really worth ten or fifteen cents less. Consequently, where it cannot be shown that the addition of water introduces anything poisonous into the milk, it is the wisest way to let the trade regulate itself in accordance with the natural law of supply and demand. Such methods, however, would not suit that fondness for the display of power which is the chief characteristic of the average official.

The important subject of "Public Nuisances" is treated by Roger S. Tracy, M.D., one of the sanitary inspectors of the New York board of health. His paper is written in a very temperate manner and is a valuable storehouse of observations regarding the annoyances incident to city life. Fortunately, while it appears to be impossible for any one to turn around in a crowd without shocking the delicate sensibilities of some one, the nuisances produced by the activities of a crowded population are less dangerous to health than might be supposed. "Impartial testimony, for example, goes to show that the disagreeable emanations from fat and bone boiling establishments are not injurious to health, but rather the contrary." (Vol. II, p. 381.) Again, "it might be presumed that substances collected in such a reckless and indiscriminate way as rags, would be a common means of propagating contagious disease, but I have never heard of or seen a case in which this occurred, nor have I been able to find any account of one in my reading." (p. 418.) Speaking of the various processes connected with the utilization of animal refuse, such as glue-making, bone-boiling, fertilizer-making, fat-boiling, etc., etc., the evidence is conclusively against the idea that the offensive odors emitted in these processes are deleterious to health

and the subject may be dismissed with the remark of the author that contrary opinions "coming from people who are trying to suppress a nuisance are naturally liable to be exaggerated and must be taken with allowance." (p. 426.) The author does not attempt to explain the manner in which living beings become tolerant of the most varied forms of discomfort; he merely enumerates the different nuisances and states their effect upon health. In fact, the adjustment of the human body to all kinds of noxious influences, so that they cease to operate injuriously, is a subject with which sanitarians seldom concern themselves.

"Quarantine" (with reference solely to sea-port towns) is ably discussed by the health officer of the port of New York, S. Oakley VanDerpoel, M.D., L.L.D. The subject possesses such interest and importance that we reserve the paper for a notice more extended than the limits of this review will permit. The secretary of the Louisiana State board of health contributes a disappointing essay on land quarantine, which seems to consist chiefly of a shallow argument in favor of throwing upon the national government the burdens which should be supported by State and civic organizations. The whole paper would do credit to its author as an argument addressed to the public through the periodical press; but in a volume like the present it is quite out of place.

Dr. Allan McLane Hamilton, of New York, the well-known author of a manual on nervous diseases, and Dr. Bachell E. Emmett have written the article on the "Management of Small-pox and other Contagious Diseases." Aside from considerable unnecessary descriptive matter pertaining to the diseases themselves, the essay is well written. It however, contains little that is new. In connection with the question of compulsory vaccination, the author very sensibly remarks, "Whatever may be the advantages of such a system abroad, it is certainly not suited to our own country. * * * It has been found, especially in New York, that an appeal to the common sense or fears of the public is sufficient, and that force is worse than useless. * * * Every year that passes shows an increased readiness upon the part of the lower classes to be vaccinated, and perhaps even in England the persuasive method would be the best, as it unques-

tionably is here." (p. 527). This is a principle which admits of almost indefinite extension in sanitary administration.

The "Hygiene of Syphilis" forms the subject of a brief and rather timid paper by Dr. F. R. Sturgis of New York. The author seems to be rather uncertain about the best course to pursue with reference to the suppression of syphilis, but he finally concludes that very little can be accomplished by the government "until a decided change takes place in the feeling and customs of the country." In other words, the matter is beyond the reach of all official intermeddling.

Dr. Elwyn Waller, chemist to the New York board of health, is the author of a valuable paper on Disinfectants, which may be considered the latest and perhaps the most authoritative utterance on the subject. It of course cannot be condensed for presentation in this review.

Dr. Tracy, the author of the paper on Public Nuisances, contributes another article entitled Village Sanitary Association. It has every where been found that, when the care of the health of the community has been abandoned to an official bureaucracy, matters soon relapse into their former condition. A general apathy and indifference settles down upon the authorities who have been specially charged with the work which properly belongs to every individual member of society, and the "public health" really deteriorates. Another evil, also, more frequently appears. The officials charged with the care of the "public health," find unnumbered opportunities for the initiation of costly public works — Fullerton avenue conduits, and their like — which are defended upon the ground of their alleged vital importance as means for the protection of the health of citizens. To save men from their saviors, and to diffuse real knowledge throughout the community, it is now found better to rely upon the independent voluntary efforts of citizens working together in the form of an association. This has been done with great advantage in several communities — notably in New Orleans during the past year. Dr. Tracy agreeably sketches the manner in which such associations may be formed, and the line of effort which they may pursue with advantage to the public.

The closing essay of the volume is written by Dr. D. F. Lin-

coln, of Boston. It consists chiefly of an application of the laws of hygiene to the individual care of children at school; and, though leaving scarcely anything to be desired, it calls for no special remark.

The unusual length of this review warns us against extended comment upon these volumes as a whole. They are not sufficiently condensed, and many subjects have really been considered by several of the essayists in succession. This was, however, inevitable, unless the editor had undertaken a closer revision than is usual under such circumstances. The work is a fine store-house of materials, gathered from the most varied sources; and will long remain the most convenient authority on all the subjects of which it treats. It is generally free from the extravagancies which characterize the writings of neophytes, though some of its contributors cannot always refrain from twanging the sanitary jews-harp. In spite of minor defects, the book will do a great deal of good, and should be carefully read by every physician. H. M. L.

ARTICLE X.—THE AMERICAN CYCLOPÆDIA OF DOMESTIC MEDICINE. Edited by S. P. Ford, M.D. 8 vo., 1215 pages. Chicago: E. P. Kingsley & Co., 1879.

This is an attempt to diffuse among the laity an acquaintance with the science of medicine and is the most successful effort of the kind we have seen.

The editor presents, in a popular manner, the principles that underlie the diagnosis and treatment of disease, and has given much space to hygiene. There seems to be a demand for such books, and while we may doubt the propriety of their publication, we must at least credit the editor of this with giving the people, along with much information, much sound advice. The tendency of the book will doubtless be to strengthen the regular profession and pull down the bulwarks of quackery. The necessity for a prompt appeal to the scientific physician and disastrous consequences that may follow the lead of the charlatan, are well stated on many pages. B.

## Books and Pamphlets Received.

Transactions of Illinois State Medical Society, May 20 and 21, 1879.

Infant Feeding and its Influence on Life, or the Causes and Prevention of Infant Mortality. By C. H. T. Routh, M.D. Third edition; 1879. Cloth, pp. 270. New York: Wm. Wood & Co. Chicago: W. T. Keener.

The Physician's Visiting List for 1880. Twenty-ninth year of its publication. Philadelphia: Lindsay & Blakiston.

Treatise on the Theory and Practice of Medicine. By John Syer Bristowe, M.D., London. Second American edition, revised by the author, with notes and additions by J. H. Hutchinson, M.D. 1879. Leather, pp. 1081 Philadelphia: H. C. Lea.

Transactions of the Medical Society of the State of Pennsylvania, at its Thirteenth Annual Session, May, 1879. Vol. XII, part II. Published by the Society.

Dr. Houts' Physician's Journal, Credit Book and Ledger. Third improved edition.

New and Improved Surgical Instruments. By J. G. Meachem, sr., M.D. Reprint from Transactions of Wisconsin State Medical Society.

Report of the Adams County Medical Society. By J. W. C. O'Neal, M.D. Reprint from the Transactions of the Medical Society of the State of Pennsylvania for 1879.

A Biographical Dictionary of Contemporary American Physicians and Surgeons. Edited by Wm. B. Atkinson, M.D. Second edition, enlarged and revised. Cloth, pp. 767. Philadelphia: D. G. Brinton. Chicago: Jansen, McClurg & Co. Price, $5.00 cloth; $6.00 leather.

Dictionary of German Terms used in Medicine. By Geo. R. Cutter, M.D. $3.00, cloth; 1879. New York: G. P. Putnam & Sons. Chicago: Jansen, McClurg & Co.

A Text Book of Physiology. By M. Foster, M.A., M.D. With illustrations. Third edition, revised. Cloth, pp. 720, price $3.50; sheep, $6.50. Cheaper students' edition to follow. London: McMillan & Co. Chicago: Jansen, McClurg & Co.

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A New Health Resort.—The London *Medical Press and Circular* for Oct. 29, 1879, publishes as the title of one of its leaders, "Residence Abroad in Lung Consolidation!" We should prefer a residence at home in the "solid South."

# Editorial.

A New Year and a New Volume.—The present number of the Medical Journal and Examiner marks the commencement of a new year, a new decade and a new volume.

So far as present indications can be interpreted, it also coincides with the commencement of a new era of prosperity in all departments of industry throughout our country, and of comparative health and comfort in all circles of society.

Hence it is an excellent time for all our old subscribers to renew their subscriptions, and for many new ones to send in their names and money, and thereby add the ample pages of the Journal and Examiner to their valuable sources from which to gather new thoughts and new resources to aid them in combatting disease and preserving human health and life. We shall do our best to make it worthy of the patronage of all members of the profession, and close this note by cordially wishing all our readers a *Happy New Year*. D.

The Metric System.—One strong argument in favor of hastening the universal adoption of the metric system of weights and measures by the medical profession, is the persistent tendency of printers to confound the old symbols for drachms and ounces, thereby making dangerous alterations in the proportion of ingredients entering into prescriptions. As samples, we saw in the first number of a new medical journal the following:

℞ Fl. ext. galii.....ʒii
Fl. ext. jaborandi.....
Tinct. digitalis..... } āāʒss
Nit. potassa.....ʒii
Mix; one teaspoonful at a dose.

If this should be literally copied for use by practitioners, they might soon find their patients presenting all the symptoms of the excessive action of the digitalis and jaborandi; to say nothing of the nitrate of potassa. Of course the two *drachms* of the fl. ext. of *galium* was intended to be two *ounces*. In another of our exchanges we saw a formula given in both methods, as follows:

| | | | |
|---|---|---|---|
| ℞ A. B..... | grams | 8 | =℥ii |
| C. D..... | " | 16 | =℥iii |
| E. F..... | " | 32 | =℥i |

It is true, that such mistakes always arise from want of accuracy in the reading and correction of proof. But we have known the same mistakes to be made by druggists in filling prescriptions, in which the symbols for drachms and ounces both occurred. D.

EDITORIAL CHANGES.—Those who notice the external title page of this number of the JOURNAL AND EXAMINER, will see that the name of William H. Byford, A.M., M.D., has disappeared from the list of the corps of editors. When the *Chicago Medical Journal* and the *Medical Examiner*, were united and placed in the hands of the Chicago Medical Press Association, the directors of that organization selected Prof. Byford as the senior editor for a term of four years. He had completed his full term of service last month, and declined a re-appointment. His association with his colleagues during the entire four years has been pleasant and profitable. While they will miss his valuable counsel in the direction of their work, we trust the readers of the JOURNAL AND EXAMINER will continue to be favored with the perusal in its pages of such contributions as his time and ripe experience will enable him to make. D.

ILLINOIS STATE BOARD OF HEALTH AND THE ECLECTIC MEDICAL INSTITUTE OF CINCINNATI, OHIO.—At a meeting of the Illinois State Board of Health, held at the Grand Pacific Hotel, Chicago, on Thursday, Dec 11th, the status of the Eclectic Medical Institute was discussed. Since last June the diplomas of this school were not recognized by the board, owing to the

fact that it has two courses that count in graduation, in one year, which is contrary to a regulation of the board.

The institute was represented by Boutell and Waterman, of Chicago, as attorneys, and Drs. Scudder and Howe, Professors, of Cincinnati. The State was represented by the attorney-general.

The rule of the board, adopted in 1877, requiring each college to have but one graduating course a year, or its graduates would not be permitted to practice in this State, was gone over in all its phases. No result was arrived at until the evening session, when the following was submitted:

The Eclectic Medical Institute, of Cincinnati, represented here by Drs. Scudder and Howe, agree to abide by the propositions advanced in the rules of the said institute, which are, that three years of medical study are required before graduation, and two courses of lectures of twenty weeks each, and a period of sixteen months at least being occupied by said courses or collegiate instruction, and that the officers of the institute will give certificates to that effect to graduates of said institute, and that diplomas shall only be issued in June.

A. J. Howe,
John M. Scudder.

After deliberation, the following was passed:

*Resolved*, That in view of the foregoing, the diplomas of the Eclectic Medical Institute, of Cincinnati, will be recognized by this board.

The next meeting of the board will be held in Springfield, Jan. 8th, 1880.

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The selection, which appears on another page, entitled: "Is Phthisis Self-limiting?" by Dr. Wm. Porter, of St. Louis, is taken from the *St. Louis Medical and Surgical Journal*. The article was set up by us from advance proof-pages, and we only learn, as we go to press, the name of the journal in which the article appears as original matter.

# Selections.

IS PHTHISIS SELF-LIMITING? By WM. PORTER, A.M., M.D., Read before the St. Louis Medical Society, Oct. 1877. From advance proof pages furnished by the author.

It is well known that at a recent meeting of the New York Academy of Medicine (May 1879), Prof. Flint asserted his belief in the self-limitation of phthisis (*Arch. of Med.*) This assertion was made so forcibly and sustained by such seemingly positive proof that it has thus far been received without recorded dissent. It being a subject of vital importance, with all respect for the learned author, we will examine his position from his own stand-point, and cite the cases which he has noted. The deductions that follow will thus be made upon ground already chosen.

Let us, then, gentlemen, receive the evidence purely upon its merits, forgetting, if possible, the high authority which we call in question. It is, moreover, right that a decision be reached in this matter, for if phthisis be self-limiting, this element must necessarily affect the result in no small degree; but if it is not, then must we look to therapeutic force and hygienic conditions for success.

At the outset, however, I cannot but echo Andrew Clarke's just tribute to our author, for he is "one from whom I have learned much; one whose acute powers of observation, whose largeness of experience, deserve the warmest gratitude of every student of pulmonary pathology." We revere and honor Flint; therefore, we shall deal freely and directly with his conclusions.

What is meant by self-limitation? So far as our argument is concerned, the definition given by Prof. Flint is well adapted. "A disease is self-limited when it ends in recovery, irrespective

of extrinsic influence derived from either hygiene or therapeutics."

We might almost rest our case here, for it will be at once conceded that the rule is that phthisis does not end in recovery, irrespective of extrinsic influence. To this rule there are few, if any, exceptions—certainly too few to affect the question. To these exceptions, however, our author points, and says they "are amply sufficient to substantiate the statement that in certain cases pneumonic phthisis ceases to be progressive, and may end in recovery from self-limitation." I will endeavor to prove to you, gentlemen, that phthisis is not, and cannot be, from its very nature, a self-limiting disease; and will ask you to examine with me briefly, first, whatever in the causation and pathology of phthisis relates to the subject; and, second, the clinical evidence adduced by Prof. Flint to substantiate his position.

Let us at the outset look for a working definition of phthisis. Flint, in the discourse mentioned, considers the "term pneumonic phthisis or pulmonary consumption as applicable to all cases of phthisical disease, exclusive of acute tuberculosis or interstitial pneumonia." Very true. What, then, is phthisical disease? A wasting, a constitutional disease, "a progression of symptoms, characterized," as Andrew Clarke has it (*New York Medical Record*, Dec. 14, 1878) by an ulcerative or suppurative destruction of a more or less circumscribed non-malignant deposit in the lung." The great factor back of all local manifestation is, then, the phthisical cachexia. Flint himself (Prac. Med. p. 289), admits the pathological fact that the pulmonary invasion is "the local expression of a general or constitutional morbid condition, the latter being the essential disease." He further says, "the great object of treatment, therefore, is the removal of this constitutional morbid condition or the tubercular cachexia. Measures addressed to the pulmonary affection are of secondary importance." How, gentlemen, can we believe that pulmonary phthisis, the local manifestation, is self-limiting, when back of it we have the tubercular cachexia? The author having taught that phthisis is the local expression of a cachexia, yet self-limiting, the deduction must be that the cachexia—this tubercular cachexia—is self-limiting also; in other words, that this condi-

tion, with its sequences, has an "intrinsic tendency to recovery irrespective of extrinsic influences derived from either hygiene or therapeutics." Is it any wonder that we turn from the *ipse dixit*, and call for proof ere we subscribe to this doctrine?

Let us glance at some of the causes of phthisis, and see if we can relegate to them a self-limiting tendency. Among these we have inheritability, age, climate, habits of life, poor food and exposure. Now, if from any of these causes—and these are the principal ones—a man has phthisis, is it reasonable to expect a limit from intrinsic influence? And if the man recovers, the cause being removed, is it not to this rather than to self-limitation that the result is due? When a patient with an inherited tendency to phthisis is so strengthened as to resist the advance of the disease, or by care and prudence lives beyond the dangerous decade; or weakened by an effeminating, changeable climate, seeks a better one, or exchanges a hurtful occupation for one more favoroble—there is a cause for the stay of the disease more tangible than "self-limitation." To such a cause will we find most, if not all, recoveries from phthisis are due.

A few words regarding the pathological characteristics of phthisis. Here I cannot serve my purpose better than to again quote from Prof. Flint (Prac. Med., p. 280): "The fact to be especially borne in mind is that pulmonary tuberculosis is not primarily and essentially an affection of the lungs. The tuberculous products proceed from a prior morbid condition of the system. It is a rational inference that a vice of assimilation is involved in the existing cachexia." Putting aside all disputed points as to the relation of true tubercle to phthisis (Prof. Flint using the terms phthisis and pulmonary tuberculosis in the same sense—(Prac. Med., p. 271), we have this succession which all admit—cachexia, mal-assimilation, pulmonary invasion. The latter impairs the respiratory function, and thus reacting upon the assimilative, the cachexia is further determined. The patient is thus inclosed in a morbid circle which can only be broken from without. Limitation must result from either repressing the cachexia, restoring assimilation, effecting retrogression of the pulmonary invasion, or all of these together. Tell me what is there intrinsic in this vicious circle which will cause it to break

itself? The rather, each link becoming its own cause, grows stronger through the others, and without extrinsic influence the disease progresses. In the very nature of cause and effect it cannot limit itself.

If, then, what we know of the causation and character of phthisis is opposed to the idea of self-limitation, let us examine the clinical evidence adduced in support of this theory.

Prof. Flint, in his well-known work on Phthisis (1875), records 670 cases of this disease, among which were 75 in which either recovery took place or the disease became latent; and his recent paper is founded upon their histories. Now, gentlemen, it is to those 75 cases that we must look for all the proof that has been given of the self-limitation of phthisis. By these, thus far, must the proposition stand or fall. We find that in 31 of these cases the statement is merely that "the disease ceased to progress for at least several months, and in the majority of cases for several years." By reference to the record we find that the last examination of each gave evidence that the disease was still present—latent in some, as may occur in phthisis, but not self-limited; for "a disease is self-limited when it ends in recovery," etc., and these had not recovered. As according to our author's own definition 31 of these cases have no definite bearing upon the point in question, we are restricted to the study of the remaining 44.

As self-limitation is independent "of extrinsic influence, derived from either hygiene or therapeutics," we at once decline the evidence of twenty-one of the forty-four cases, for in all of these pertinent and generally persistent treatment was pursued. Moreover, *three* of these cases subseqently proved fatal, and the last examination showed that at least a third of them had still physical signs of phthisis. We must object to these twenty-one histories as pertinent. The interest now centers in but twenty-three. "In fifteen of these cases hygienic measures constituted the treatment;" but these measures were of such a character as would lead us to hope for favorable results, viz., changes of business, out-door life, rest, sea voyages, change of climate, etc. These are potent aids, for as Flint says (Prac. Med., p. 290), "out of door life is of all measures most important." Now, to prove a disease self-limiting, we must eliminate whatever can be

reasonably traced to "either hygiene or therapeutics." These fifteen cases were given the advantage of favorable hygienic condition, and who shall say they would have recovered without these conditions? Having made use of that remedy which of all others has been found efficacious in phthisis, these fifteen cases are certainly not examples of self-limitation.

I have refrained from occupying your time with the details of the author's cases, which, in accordance with his own definition of limitation, have been refused as evidence. The history of these is fully given in his work on Phthisis, and I have endeavored to deal fairly and justly with the record.

Let us now apply the test to the eight cases which alone remain. These are numbered 1, 4, 7, 8, 14, 20, 23, and 24 (Phthisis, p. 187, *et seq.*) and are the only ones of which the author says "there was no medicinal treatment of importance, and no material change in the habits of life, the recovery taking place purely from an intrinsic tendency."

CASE I is that of a farmer who, having in the winter of 1842-'43, expectorated what were thought to be pulmonary calculi, was examined in June, 1843; "the only physical sign noted was feebleness of the respiratory murmur." He was in excellent health thirteen years after. "Prior to the development of the disease the patient had worked very hard on a farm. He left home for several weeks, and after relinquishing severe labor, engaged in buying and selling new lands in Illinois, a business which required much out of door life."

CASE VII is that of a constable, examined in April, 1856. Six years before he had had a hæmorrhage, and shortly afterward recurrent hæmoptysis for ten days. During the following year Prof. Flint met this man from time to time on the street, and he seemed to be in good health. As this man evidently had phthisis for six years prior to examination, what reason is there, in the absence of a later examination, to suppose that he had entirely recovered during the succeeding year? The statement that he seemed well will apply, at times, to many cases of chronic phthisis. "There is no further record of this case. The treatment consisted of cod liver oil for six weeks, generous living, the

use of malt liquors, and out of door life. Very good extrinsic influences, we take it.

In case XXIV. we find that the patient consulted Dr. Flint by letter, in 1859; was relieved of part of her duties as a teacher; took more out of door exercise; traveled in the summer. In 1862 had abnormal dullness, feeble respiration, and increase of resonance and whisper at the right summit. Afterward traveled in Europe; in 1868 had hæmoptysis; in 1869 increase of symptoms, and she died in the sping of 1871. Did this patient recover, and that without change of hygienic condition?

CASE IV.—A physician, aged 28, had hæmoptysis in October, 1852, and again in January and May, 1853. In May, 1853, he had slight dullness at the right summit, with weakened respiratory murmur and crackling, which accompanied inspiration and expiration. In September, 1854, he reported himself well, "a year after recovery:" i. e., his recovery must have dated from September, 1853, five months only after the above symptoms were noted. However, we find that in September, 1854, there was still "dullness at the right summit, and the respiratory murmur was feeble."

CASE XIV.—A physician, who had cough, hæmoptysis and slight loss of flesh, was examined October, 1857, and found to have evidences of phthisis at the left apex. Five years later Dr. Flint saw him in apparently good health. He had been drinking beer, living generously, with an abundance of exercise out of doors. It seems that in this case and in number IV, no medicinal agent was used, though the patients were physicians. They both had the influence of riding and driving in the open air while engaged in country practice.

The three remaining cases do, so far as recorded, seem to be instances of recovery from phthisis without medical or hygienic agency.

Number VIII was a clerk, examined in August, 1856, having had cough two months previously and hæmorrhage a week before. There was dullness and feeble respiration at the right apex and sub-crepitant râles on both sides. In October, 1856, he was reported well, and was in good health in 1871. The thought is

at once suggested, why did he, being examined at a time of greatest danger, not have medicinal treatment? The case is, however, one of great interest, and is certainly an exception to the general rule, as the disease appeared, progressed and abated within a period of five months.

The other two cases, XX and XXIII, furnish the best evidence in favor of self-limitation, though the record is very short. Two sisters, whose parents, three sisters and two brothers, had died of phthisis, were found, one with disease of the left apex, the other of the right. No remedy of importance was given, or change made in the habits of life. Both were well 15 years afterward. Again the question may be asked, why was not some form of treatment or change of condition ordered in these cases, as "no effort had been spared to save the lives of their sister and brothers; traveling, changes of climate, together with remedies having been resorted to in vain, although, perhaps, with the effect of retarding the progress of the disease." With this, however, we have nothing to do. The record is that these two sisters for whom nothing was done, alone recovered. Granting that these two cases and the one and possibly the three preceding ones show evidences of self-limitation, yet, we again quote from Prof. Flint's paper, "Self-limitation cannot be inferred from a single case or a very few cases."

Twenty years ago Prof. Flint advanced the idea of the self-limitation of phthisis (*Am. Jour. Med. Sci.*, 1858). A year ago the question was ably reopened by the same author. The conclusions made, though much quoted, have not as yet, as far as we know, been indorsed by any of the many observers and investigators of pulmonary disease. Is it possible that in all this time all others have overlooked this most important element in the progress of phthisis, to which attention has so long ago been called? Does not the etiology, pathology and termination of phthisis plainly teach that without extraneous influence, phthisis is progressive, limited only by death? Clinical evidence is certainly opposed to the doctrine of self-limitation, for we find that even in the large experience of its only advocate, among hundreds of recorded cases, that this doctrine is sustained by but few, and

in all fairness we confess a doubt as to the pertinence and value of most of these.

As Prof. Flint has placed the evidence before us, it is the right and duty of every physician to examine it, and to judge for himself. If phthisis is self-limiting, let it be proven so, for with the assertion comes the *onus probandi*. As yet we must believe that self-limitation is not an element in the character of the disease.

Though unwilling to admit that there is an intrinsic tendency in phthisis to recovery, yet we should not lose sight of the fact that many cases of phthisis respond to judicious treatment and hygienic conditions. In truth, in no other disease is careful scrutiny and constant care more necessary or better rewarded. Even were self-limitation ten times proven, it should not lessen the vigilance and attention which such cases demand. In all cases of phthisis two forces are at work—one aggressive and morbid with (as we believe) a direct tendency to death; the other defensive and systemic, opposed to and retarding the progress of disease. Whatever method of treatment is pursued, it and everything connected with it should tend to the building up of the system, and the increase of the powers of resistance to disease. In this we believe is the true limitation of phthisis.

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MESSRS. DECAISNE, of Paris, have made certain experiments upon the head of a decapitated criminal, which demonstrate that the popular ideas respecting the survival of consciousness after the act of execution, are totally erroneous. The traditions which teach that certain heads have exhibited phenomena, in the winking of eye-lids, biting of lips, blushing, etc., belong evidently to the category of the ghost stories of the nursery. The Messrs. Decaisne, although experimenting upon the head immediately after the descent of the fatal axe, were unable to elicit the faintest evidence of vitality.

# Summary.

## PHYSIOLOGY.

ON THE ASSIMILATION OF MILK IN THE INTESTINES OF THE NEW BORN. By Forster. *Mitt d. Gesellschf. Morph zu. München*, March 6, 1879. *Revue des Sc. Méd.*, July, 1879.

These researches were made on a child four months old. The child took from 1,000 to 1,200 grams of a mixture of four parts of cow's milk and one part of thin rice water per day. Its weight increased about 150 grams a week. For eleven consecutive days the food eaten and the discharges were accurately weighed During this time the child ingested 13.04 liters of the mixture, that is, 1.218 liters a day; the solid contents of which was 136.08 grams. These solids were utilized in the intestines of the child in the proportion of 6.35 per cent., that is to say double the quantity of what is utilized in the adult, but considerably inferior to that which is afforded by flesh. The fat was the element least readily absorbed. The fæces during the milk diet did not contain the least trace of albumen or sugar, but they contained from 30 to 40 per cent. of fat or fatty acids, and 34 per cent. of ash, one-third of which is represented by calcium. Large quantities of soap were found, especially earthy soaps. Of the 87.08 grams of ash in the milk taken during the eleven days, 32.01 were found in the fæces; and of the 13.56 grams of calcium, 13.34 grams were recovered. It may be calculated then that the body of the child retained 30 centigrams of calcium a day, or 2-01 grams a week, which corresponds to 19 grams of bone a week, or nearly a kilogram in a year.

## ANNOUNCEMENTS FOR THE MONTH.

### SOCIETY MEETINGS.

Chicago Medical Society—Mondays, Jan. 5 and 19.
West Chicago Medical Society—Mondays, Jan. 12 and 26.

### CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.
Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.
Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.
Woman's Medical College—3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Hollister.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.
Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.
Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

THE

CHICAGO MEDICAL

# JOURNAL & EXAMINER.

VOL. XL.—FEBRUARY, 1880.—No. 2.

[In these pages dimension and weight are expressed in terms of the Metric System, and temperature in degrees of the Centigrade Scale.]

## Clinical Lectures.

### ARTICLE I.

NOTES OF PROF. S. J. JONES' CLINIC AT THE ILLINOIS CHARITABLE EYE AND EAR INFIRMARY. Reported by F. C. SCHAEFER, M.D., Asst. Aural Surgeon.

*Eczema.*—This little girl aged seven years, has an unsightly eruption extending from the concha into the external meatus. It forms a scab or crust on the skin from which there escapes a thin yellowish fluid. The integument in the vicinity of the eruption is rendered highly sensitive by reason of the hyperæmia occasioned by this morbid condition, which is accompanied by more or less pruritus. The itching sensation is sometimes so severe as to lead the child to seek relief by rubbing the surface with the finger, and thus produce friction which only intensifies the process of inflammation, and in some instances produces a diffuse inflammation involving the entire meatus. Upon inquiry, the child's mother states that the eruption has existed three months, that a number of little watery "blisters" first appeared, which soon run together and formed this mass of incrustation, which

has probably been thickened by the addition of considerable dirt. This is the usual history of eczema of the ear.

Eczema is classed among the vesicular skin diseases, of which there are three grades, the acute, sub-acute and chronic. The acute is the most common form met with in this locality, and occurs usually in children suffering from defective nutrition, in those who are poorly fed, and in the large class who have inherited a strumous diathesis. It is sometimes brought on by uncleanliness or by the pernicious habit of picking the ears. Occasionally it appears in the adult, resulting from the application of irritating substances to the part involved.

The treatment will vary with the grade of the affection. In the acute form local sedatives are indicated. If accompanied by a burning sensation with considerable tendency to inflammation, mild astringents should be applied to the part.

The sub-acute grade will call for about the same treatment, with the addition of moderate stimulation. In the chronic form emollients are useful to soften the scales, and more decided stimulating applications are recommended. Frequent lubricating of the parts with vaseline to prevent drying and hardening of the secretions, and to protect the diseased parts from the irritating effects of the atmosphere, will be found to be servicable. Constitutional treatment is often required in these cases.

*Acute diffuse inflammation of the external meatus.*—This patient states that there has been an intolerable itching sensation in her right ear during the last two weeks, but two days since this gave way to an intense aching pain, and feeling of fullness accompained by noises in the ear, and that her hearing became suddenly impaired. Upon inspection the external auditory canal is found almost closed by swollen integument. The tragus is thickened and the entrance to the meatus is rendered almost impervious by the tumefied condition of the tissues. These parts are very sensitive to the touch. It would be impossible to obtain a view of the membrana tympani without causing a great deal of suffering to the patient as the thickened walls of the meatus encroach upon the caliber of the canal and would have to be violently pressed apart in order to introduce a speculum, a proceeding uncalled for, and that would aggravate the disease.

The entire internal surface of the meatus is very sensitive and reddened by inflammation. Could a view of the membrana tympani be obtained, its outer surface would doubtless present a somewhat similar appearance.

This is a case of acute, diffuse inflammation of the external meatus, which can be promptly relieved by judicious treatment. Should it be neglected or improperly treated, the inflammation might pass into the suppurative stage and involve more or less destruction of tissue, macerating the membrana tympani and sometimes producing perforation of it, or the acridity of the pus by reason of its irritating qualities, might give rise to the formation of furuncles or polypi. Not infrequently, a low, chronic form of suppurative inflammation supervenes, with an exceedingly offensive discharge, bringing the tissues into a low state of vitality favorable for the lodgment, upon their surfaces, of a parasitic fungus, aspergillus, of which three species have been found in the ear of man, viz: aspergillus flavus, a. glaucus, a. nigricans.

In another class of cases the acute symptoms gradually merge into a chronic inflammation, which has for its sequelæ the suppression of the function of the ceruminous glands and the destruction of the vitality of the epidermis owing to the long continued dry condition resulting ultimately in its desquamation. Frequently a cast of the meatus is thrown off and sometimes exostoses develop. The pain accompanying the acute inflammation is very severe. The explanation for this is to be found in the fact that the integument lining the external auditory canal, in its lower part, lies in such intimate contact with the bone as to almost make it a periosteum, and an inflammatory process here must be similar to a periostitis, which is always extremely painful on account of the compactnesss of structure which is surrounded by bony walls that cannot yield to pressure.

The cause of this condition can frequently be traced to a habit of picking or rubbing the ears with hair-pins and ear-scoops that many people resort to in the belief that proper personal care requires that they should do so, or, as is at times done, to relieve itching in the ears. Ear wax is a natural secretion and serves a useful part in the economy, by keeping the parts pliable and pre-

venting the admission of insects. In health, the ears require no special care.

A prolific cause of this inflammation is the instillation of various oils and ear drops of an irritating character for the relief of ear-ache.

Eczema sometimes is an active cause of diffuse inflammation of the meatus.

Violent efforts made to remove impacted cerumen or foreign bodies from the auditory canal will be followed by acute, diffuse inflammation. It may also be occasioned by inflammation extending from the middle ear in case of suppurative inflammation of that part.

Treatment at first should be antiphlogistic. Scarify the inflamed surface, or apply leeches to the tragus, for at this point the vessels which supply the canal and outer layer of the membrana tympani are more surely reached. In addition to this, advise warm pediluvia and cathartics. A continuous stream of warm water is to be directed into the meatus, or in lieu of this, the meatus, if yet pervious, may be filled with warm water containing morphine in solution; the application to be frequently repeated and retained with a plug of cotton.

In the chronic form of the disease, thorough cleanliness is to be enjoined and the parts lubricated with vaseline. Should there be pain present, vesication over the mastoid process will be advisable. The suppurative cases are to be treated in the same way with the addition of astringent applications frequently applied, after frequent and thorough cleansing of the parts.

The external meatus, as a consequence of disease, is usually quite sensitive and patients frequently ask the question, what shall be done to protect their ears from cold. As a general thing little, if any, precautionary measures need be resorted to. The meatus forms a natural angle that protects its inner portion and the membrana tympani from the more dangerous effects liable to be produced by the vicissitudes of the atmosphere, yet much comfort may be given the patient by lubricating the meatus with vaseline or diluted glycerine to lubricate the parts and to supply the place of ear wax, the secretion of which has been suppressed by the inflammatory process, and to allay accompanying itching of

the meatus. Fifteen grains of carbolic acid dissolved in an ounce of rose-water will aid greatly in allaying itching and destroying the growth, if aspergillus be present, and the meatus be filled twice a day with the solution or moistened with it at shorter intervals.

The very common practice of filling the external meatus with cotton wool on all occasions is objectionable.

As the circulation of the blood in many of the diseases of the ear is defective, exposure of the affected part to a low temperature of the atmosphere, or to high winds may produce discomfort or otherwise do harm. Slight protection to the ear while so exposed may be advantageous, but indiscriminate muffling of the external ear is likely to do more harm than good.

For therapeutic use, where cotton is required, this which has been recently added to the armamentarium of the aural surgeon under the names of borated cotton, iodized cotton, and absorbant cotton, will frequently be found to be both convenient and serviceable.

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THE late *concours* at Rush Medical College, for the purpose of filling the position of Lecturer on Gynecology in the spring faculty, was rewarded with a large success, considering the number and standing of the competitors and the general excellence of their public efforts. The auditorium of the upper college lecture-room was well filled on each evening of the course, by an attentive congregation of medical gentlemen and students. The position was awarded to Dr. R. Stansbury Sutton, of Pittsburgh, who, it is understood, will make his residence hereafter in this city. Among the most effective of the lectures delivered were those of Dr. A. J. Stone, of St. Paul, Minn., and of Dr. D. T. Nelson, of Chicago. Dr. Stone's candidature was practically annulled by his announced inability to remove to Chicago for the purpose of attending to the duties of the position, but his lecture was one which reflected the greatest credit upon himself, and which produced a most gratifying impression upon the professional gentlemen who were so fortunate as to hear it.

# Original Communications.

## Article II.

### Select Topics of Modern Surgery. Illustrated by Cases from Hospital Service and Private Practice of Drs. E. W. Lee and Chr. Fenger.

I. *The Radical Operation for Non-strangulated Hernia.* Illustrated by a case in the practice of Dr. Lee.

The history of surgery gives evidence that from the earliest times the radical cure of hernia has been a prime desideratum. As a result, a number of operations have been proposed for its accomplishment. It has been the common fate of all these operations—the ingenious ones of Gerdy, Wutzer and Rottmund not excepted—to be abandoned by the profession. The reason of this has been partly the danger of peritonitis, partly the uncertainty and instability of the results.

In trying to cure a hernia radically, we must accomplish two objects—first, the obliteration of the sac of the hernia; and second, the obliteration (umbilical, ventral, crural hernia) or sufficient diminution in width (inguinal hernia) of the ring (crural, umbilical, external inguinal) of the hernia, *i. e.*, the opening in the fibrous tissues of the wall of the abdomen. The older methods of obliteration of the sac, as actual cautery, castration, excision with or without ligature of the neck of the sac, introduction of foreign bodies into the sac with a view to cause adhesive inflammation, etc., were intended to effect radical cure themselves; the narrowing of the ring was left to nature. Most of the patients so operated upon died in consequence, while many of the survivors had early return of the hernia through the open ring and by the side of the obliterated sac. Thus professional

attention was directed strongly to the importance of the ring of the hernia, at the beginning of the present century. The obliteration or plugging of the ring was sought to be effected by transplantation of a flap of skin (one successful case, Jameson), or through invagination of the skin of the scrotum (Gerdy, Wutzer, Rothmund, Wells, etc.) The latter method has been practiced extensively. Although relatively bloodless, it is not without danger of peritonitis, and the plugging of the ring is very imperfect and uncertain.

A more rational way of obliterating the columns of the fibrous ring was, in 1863, introduced by Wood, of London. He unites the columns of the crural ring with sutures, introduced subcutaneously through a small incision in the scrotum. The uncertainty of carrying the sutures into the columns, guided only by the feeling of the fingers, is obvious, and probably this is the reason why relatively few surgeons have adopted this method.

It is to Lister's antiseptic method of operating, and to his antiseptic dressings, that we are indebted for the last important step toward effective radical cure for non-constricted hernia.

Czerny, the most gifted of Billroth's pupils, has, in a daring but strictly scientific way, proposed and successfully employed a new method, the one used in the operation upon the patient whose case will be presently described.

The main features of the operation are: a free incision over the whole length of the hernia; exposure of the sac; reduction of the contents of this, if possible, without opening it, but with opening if this be necessary; ligature of the neck of the sac and amputation of its fundus; reduction of the ligatured stump of the sack into the abdomen, the fundus being removed or allowed to remain in its place. Next the fibrous columns of the ring are dissected out and a suture of strong catgut is passed through them, bringing them together; after which the external wound is closed over drainage tubes and Lister's dressing applied.

Previous methods were applicable only to reducible hernias, and could not be used without great danger, if even the smallest portion of the contents was adherent to the sack.

In the case now to be related, the operation was made upon an irreducible hernia. The patient, E. C., thirty-one years old, a

switchman, noticed, in 1864, a small inguinal hernia on the right side; it was of the size of a large marble. It only came out occasionally with efforts at jumping or other violent straining effort; and he was obliged always to replace it manually. It caused no pain. In the course of years it grew to the size of a duck's egg, but he could always return it easily.

On June 7th, 1879, while forcing over a ground switch with great effort, the hernia came down much larger than ever before, forming a tumor in the scrotum seven inches long by three and a half or four inches broad. He went home and to bed, tried to reduce the hernia and succeeded partially, but a considerable mass remained protruding and in the scrotum. The next morning there was some pain in the tumor, and a physician attempted to reduce it, with the patient under anæsthesia, but in vain. Two days later, Dr. Lee was called, and drew a little serous fluid from the tumor with the aspirator, and then attempted to reduce, but without success. There remained an irreducible hernia, four inches long by three inches wide. A few days afterward, a careful examination was made, when the tumor was found of the same size as before, a little tender on pressure, giving a dull percussion sound, over its whole surface; the lower part of the tumor movable from side to side, the upper, outer, narrower part fixed to and filling the external inguinal ring (?); no fluctuation being discoverable anywhere. The contents of the tumor were felt to be an uneven, somewhat nodular mass, over which the integuments, skin, dartos and fascia were movable. There had never been any hiccough, vomiting or constipation, or other evidence of strangulation of gut or even irritation of peritoneum or contents of the peritoneal cavity.

The diagnosis arrived at was irreducible inguinal hernia omentalis (epiplocele). The patient, unable to do his work and earn his living, begged that something might be done to relieve him. As no bandage or truss would enable him to do the heavy work required by his vocation, it was explained to him that the only means by which he could regain his health and former ability to work, was an operation for the radical cure of the hernia. The dangers and chances were laid before him, and he consented to the operation. Five days previous to the operation he was put

to bed, given a dose of castor oil every day, and kept on a diet of liquid food, consisting of beef tea and milk in moderate quantity.

On the 30th of July, at 3 p. m., the operation was performed by Dr. Lee at the patient's home. There were present Drs. Fenger, Isham, Bridge, Saulsbury and Goldspohn.

The pubis had been shaved and the abdomen washed carefully with soap and carbolized water.

The anæsthesia was induced with ether, and every step of the operation was made under a powerful spray of five per cent. carbolic acid solution.

An incision six inches long was made from above the neck of the hernia and the external ring down to the scrotum. The superficial fascia, tunica, dartos and the fascia of the external oblique, were cut through with only some venous hæmorrhage. The sac of the hernia, thus laid bare, was dissected loose from the surrounding tissues and opened, when about an ounce of reddish, but clear, serous fluid escaped. From this moment, and during the rest of the operation in the sac, the neck of the latter was firmly compressed with the fingers to prevent blood or other fluid from escaping into the abdominal cavity. Through the dilated opening the sac was found to contain a large quantity of somewhat indurated and œdematous omentum, but no intestine. The omentum was then divided at the neck of the hernia into three equal parts by means of ligatures, no knife being used, and separately ligatured firmly, carbolized catgut being the material used. The mass was then cut off one centimeter from the ligatures, and the stump pushed through the ring into the abdomen. The next step was to carefully separate the empty sac from the spermatic cord, when one strong catgut ligature was passed around the neck, and the peripheral part of the sac cut off.

The fibrous columns of the external and inguinal ring were next laid bare, the opening being about four ctm. long by one and a half ctm. broad, and, by means of two curved needles threaded with *one* strong, large and long piece of catgut, a continuous, uninterrupted suture, resembling the lacing of a shoe, was passed through the columns 0.5 ctm. from their free border. The needles were always passed from within outwards, and alternated from side to side, so that the catguts crossed each other as in the lacing of a

shoe. In this way the external inguinal ring was closed, the columns being drawn together firmly, a space being left at the internal inferior point of the ring just sufficient to accommodate the spermatic cord without strangulation. After hæmorrhage had ceased, a large drainage tube was laid in the bed of the wound, and the integument closed over it with carbolized silk ligatures.

A perfect Lister antiseptic dressing was applied over the whole hypogastric region, with an opening for the penis. The dressing was fastened with a double spica, and the whole bandage covered with a large, elastic, pure rubber bandage, with a view to exercise an uniform elastic pressure over the wound as well as over the whole lower part of the abdomen.

The patient was put to bed, with a pillow under the knees, to maintain them in a semi-flexed position. Laudanum was given to prevent the bowels from moving.

On August 1st the wound was re-dressed. There was no fever and no pain in the abdomen.

August 5th the dressings were re-applied. The bowels had moved for the first time since the operation. There was a very little discharge into the dressings.

On August 7th the patient had a slight chill in the morning. The pulse was 100; temperature (101½ F.), 38.7°. There was some pain in the middle of the wound, and a hard swelling could be felt between the latter and the radix penis, about three ctm. below the external inguinal ring. The lower half of the drainage tube was taken out.

August 9th there was found to be but little discharge in the dressings; fever had been absent twenty-four hours; the swelling mentioned had increased in size and was steadily painful. During the night the pain suddenly ceased, and when the next day (August 10) the dressings were removed, they were found to be considerably infiltrated with pus; pus was issuing from the canal of the drainage tube; the swelling had considerably decreased in size, and pressure upon it caused pus to well up from the canal of the tube.

August 12th, two small pieces of substance, resembling in size and appearance rice grains, came from the wound.

By the 17th of August the little swelling had disappeared; there was some discharge through the drainage tube, and the patient felt well.

On the 26th day of August, the discharge having nearly ceased, the upper and last half of the drainage tube was removed.

By September 1st the wound was nearly healed and the patient was allowed to get up.

On September 9th he went to work, it being the 41st day after the operation. The wound was entirely healed.

He wore a light truss for a month after going to work, but it caused a slight excoriation of the epithelial covering of the scar, and had to be dispensed with.

For (now) two months he has not worn any support over the scar.

This man is now able, and has been, to pursue his occupation without inconvenience. He can jump upon and off cars and perform all the movements of his body with freedom and without inconvenience.

The actual condition of the part operated upon is now as follows: there is a reddish scar 10 ctm. long, reaching from the external inguinal ring to the scrotum; it is hard and firm, but not tender. When the man coughs, there is no greater protrusion at this point than of the skin covering the external ring of the opposite side.

Invaginate the skin of the scrotum, and pass the finger up toward or into the external ring, let the patient cough, and there is felt *less* pressure from within than may be felt on the left side, where no hernia ever existed.

So far, therefore, as may be judged from the patient's present condition, the success of the operation—the radical cure of the hernia—is complete.

Let us now consider the three main points of this new operation, namely, the treatment of the sac, the contents of the hernia, and the external fibrous ring in the wall of the abdomen.

(*a.*) *The Sac of the Hernia.*—Considering the sac as a part of the peritoneal cavity, the surgeon naturally desires to avoid opening it. This may be done in small reducible hernias with non-adherent sac, it being possible to loosen the sac without

opening it, and to pass it into the abdomen and to close up the fibrous ring outside of it. Czerny recommends this plan for small umbilical hernias only. We should not advise this practice in inguinal hernias for the following reasons: first, the reduced sac would be liable to pass down through the opening in the ring we are obliged to leave for the cord; second, in closing up the neck of the sac by means of sutures or ligatures, we would lose the advantage of a remedy in some cases by itself alone capable of producing radical cure of hernias, as has been seen after the operation for strangulated hernia.

Opening of the sac without exposure of its internal surface, can be done by dissecting loose the neck from its surroundings, applying single or double ligature in two places, and cutting through between these two. The upper ligatural part can then be returned to the abdomen, while the lower part, the fundus, is left in its place or extirpated entirely—which plan is preferable, as will appear further on.

Opening of the sac is of course inevitable whenever the hernia is wholly or partially irreducible. The danger from exposure of the internal wall of the sac is, in our opinion, mainly, if not entirely, obviated by the antiseptic method of operating. The statistics accessible to us give eleven cases (Czerny five, Socin five, our case one) with no peritonitis in any of them.

The contents of the sac disposed of in the way to be more fully described later, the neck of the sac ligatured and cut off and united with sutures (one of Czerny's cases) and pushed back into the abdomen, the question is what to do with the fundus—whether to leave it or remove it.

In four cases (Czerny three, our case one) where the sac was extirpated, the recovery was four times interrupted by the formation of an abscess near to or in the upper part of the scrotum, *i. e.*, in the place of the extirpated fundus of the sac. The abscess made its appearance the fifth day and the seventh day in one case each, and on the fourth week in two cases. In one of Czerny's cases he left the fundus, washing it out with a five per cent. solution of carbolic acid, and no abscess interrupted the recovery.*

* *Berlin Klin. Wochenschrift*, No. 23, 1879, Congress der Deutscher Gesellschaft für Chirurgie, Berlin, 18 April, 1879.

Czerny is inclined to ascribe the formation of abscess to the mechanical molestation of the tissues of the spermatic cord, in dissecting it loose from the frequently very adherent walls of the sac. He therefore suspects that this inflammation can be avoided by leaving the fundus in its place. But the fundus left in this manner might fill up afterward with serous fluid and form a cyst, with all the inconvenience of a hydrocele of the cord. To avoid this, an adhesive inflammation and obliteration of the sac might be obtained by cauterizing its inner surface with equal parts of carbolic acid and alcohol, as is the practice of Shunch in the radical operation for hydrocele.

Experience must in future decide whether it is desirable to leave and cauterize or to remove the fundus of the sac. Certainly an abscess should, if possible, be avoided, as it is very desirable that an uninterrupted healing by first intention should take place. Inflammation in the wound after this operation might endanger the results in a double way. The suppuration might extend up through the ring, along the ligatured neck, and cause fatal peritonitis. It would be less dangerous, but fatal enough to the success of the operation, if the suppuration around the sutures of the fibrous ring caused reopening of the latter and the discharge of the material of the former. Experience has not tended to emphasize this apprehension of danger. In all the observed (4) cases of abscess, this proved harmless to the life of the patient, as well as the final result of the operation.

(*b.*) *The Contents of the Hernia; Intestines, Omentum.*—An ansa of the intestines of an irreducible hernia may be adherent to the anterior wall of the sac, and requires the utmost caution in opening the sac. The intestine in most cases contains air as well as fæces and betrays its existence by tympanitis or want of absolute dullness on percussion. But we must bear in mind that there is always a possibility of finding, in spite of actual dullness on percussion, a knuckle of intestine close to the wall of the sac. No cut should be made without the director, and this must be used with such slight force as not to puncture an adherent gut. Never push the director through bleeding tissues, and always recognize the nature of the tissues covering the furrow of the instrument (connective tissue or muscular wall of the in-

testines) before cutting them through. Try to find a place where the wall of the sac can be seen to move over the surface of its contents and where it consequently can be opened without danger.

The sac being opened the intestine must be reduced. If not adhesions but a too narrow ring opposes the reduction we must dilate as in strangulated hernia. Adhesions require great care and skill in detaching the intestine. They (*i. e.*, adhesions) may be torn with two pairs of forceps, cut with a blunt pointed pair of straight or curved scissors, or with the knife, but they should be cut off (if at all) close to the wall of the sac, leaving parts of the latter in connection with them if they are very short. Every bleeding part of cut off adhesion must be ligated carefully with fine catgut (in one of Czerny's cases, six catgut ligatures were required) that not a drop of blood escapes from the surface of the reduced intestine.

The omentum may be reduced if it is healthy, and the reduction is easily done. Rather than dilate the neck and ring, we should ligate the pedicle of the omental mass, wholly if it is small, dividing it if voluminous, and then cut it off external to the ligatures. Catgut or carbolized silk may be used for this purpose.

(*c.*) *The Fibrous Ring.*—The interrupted sutures may be used. (One of Czerny's cases). A more efficient closure of the ring seems to be obtained by means of the uninterrupted suture (used in four of Czerny's cases, and in our own case), heretofore described. As the material for this suture we must recommend strong carbolized catgut. As the catgut after some time, the length of which is as yet unknown, becomes soft and gives way in the progressing process of absorption, it would be desirable if we could use a more resisting material, namely, strong silk ligatures. We would thus be more entitled to expect the crura of the fibrous ring to remain united for a longer time, probably long enough to effect permanent union, so as to avoid relapse of the hernia, or rather the coming out of a new one.

The well-known experience from intra-abdominal operations of later years would seem to permit the use of the silk. To further the solution of this problem Czerny made experiments with silk disinfected in different ways, testing it as to its power of produc-

ing decomposition, viz., formation of bacteria in Pasteur's fluid. His experiments seemed to prove that heavy silk thread boiled in a five per cent. solution of carbolic acid would be innocent, aseptic, and the material to use for the operation. In this way he made use of silk sutures in a case of inguinal hernia on both sides. The two operations were made at the same time on the 9th of March. On the 20th and 24th the sutures come out from the left and right sides respectively. Three months after the operation there was no hernia on the right side, but on the left a tumor as large as a pigeon's egg came out when the patient was made to cough. This one case, although not sufficient to decide the question finally, was so strong against the silk that we resorted to the catgut—the present case—and as the question now stands we shall continue to use it.

The future must decide whether the good results of this new operation for the radical cure of hernia are permanent. The small number of cases, and the short time that has elapsed since the operations, leave the question undecided.

Socin had four successful cases of operation for inguinal hernia, no relapses after one year. In one unsuccessful case the hernia returned after three months, and was operated upon the second time eleven months later. For Czerny's cases from 1875, we are yet unable to find any further information as to the stability of the results. That this stability will to a great extent be dependent upon the nature of the case, and the tissues of the patient is obvious. But it will scarcely be denied that, delicate, and often difficult as this operation is, the results will depend upon the care and skill of the operator to a much larger extent than in many other surgical operations. We should not advise any surgeon to perform this operation who is not a believer in, and thoroughly familiar with, the antiseptic method in all its smallest and often tedious details.

But following Lister's method of operating and after treatment, we believe the radical cure of hernia is as safe or safer than the old sub-cutaneous methods, and that we are indebted to Czerny for an ingenious, scientific and practicably valuable step toward the solution of the old question of the radical cure of non-strangulated ruptures.

## ARTICLE III.

THE CINCHONA CURE FOR INTEMPERANCE. By CHAS. WARRINGTON EARLE, M.D., Professor of Diseases of Children, Woman's Medical College, and Physician to the Washingtonian Home, Chicago.

During the past two years those particularly interested in the subject of temperance in the city have had their attention repeatedly directed to an "Unfailing Cure for Drunkenness."

The discoverer says: "I can and do cure any case of drunkenness that comes to me." He also claims that drunkenness is a disease concerning which there should be no dispute, and that the drug cinchona, when pure, will certainly cure not only the disease but the appetite for alcoholics.

A pamphlet has been published, entitled "Dipsomania. Dr. D'Unger's Cinchona Rubra Cure for Drunkenness—Continuous or Periodical. What it is. How it was discovered. What it has done. Copyrighted, 1879, by Dr. D'Unger."

At the top of the cover of this pamphlet occurs this remarkable sentence: "To Physicians, $10 per pint, six concentrations." Concerning these concentrations I shall have something to say later in this paper.

This monograph on dipsomania has undoubtedly been circulated very widely, as in a letter dated June 9th, 1879, Scotland, I received the following clipping or extract:

"At the Chicago Washingtonian Home, an institution for the restoration of inebriates, four patients of the worst description—and two of whom had been inmates of various reformatory institutions—have been completely cured by the use of my Cinchona Rubra. The patients can be seen personally by parties interested."

The letter was from a lady, who was greatly distressed in regard to a gentleman addicted to intemperance, and in closing, she said: "Do pray give me your unbiased opinion in regard to this alleged cure."

A number of newspapers, among them several devoted particularly to temperance, have commented freely, and, in many cases,

favorably upon the cure. The propriety of so-called temperance organs advocating the use of this drug will become apparent when an analysis of the compound is considered.

It was at the time when the Chicago *Tribune* was giving the cinchona its hearty endorsement and various inquiries were being addressed to me, as the physician of the Washingtonian Home, as to the potency of the drug in curing drunkenness; and after three or four men had come under my care who had been prescribed for by Dr. D'Unger, with no apparent benefit, that I published the following in the *Tribune* of this city:

THE CINCHONA CURE.

Chicago, December 28, 1878.

*To the Editor of The Tribune:*

I have very grave doubts as to the efficacy of the cure for drunkenness, advertised by Dr. D'Unger. God knows that no man has the interest of the drunkard more deeply at heart than I have, but I have already the history of several cases in which it has been of no use whatever, and, while willing to use everything which will liberate a victim from intemperance, I am fearful that an absolute injustice is being perpetrated by the wholesale and persistent advertisement of this so-called cure. As I have said, I have yet to meet with a case in which it has been of any benefit whatever; nevertheless in the hope that my experience has been exceptional, I solicit an interview or correspondence with those who claim to have received benefit from or been cured by the cinchona rubrum. If it is a specific, I desire to know it; if it is not, I must be allowed to warn my patients against trusting in it.

That there was an urgent and constant demand for a speedy, simple and sure cure for intemperance, one which should, as it were, operate mechanically, relieving the patient of all responsibility and apprehension, pain and struggling, not only among those who are victims of the habit, but among their anxious and sympathizing friends and relatives, was well known to me.

I knew, too, that the human mind, even in a healthy state, is so ready to believe to be true that which the human heart most earnestly desires to be so, that many eager and credulous sufferers, who could ill afford it, would try the so-called unfailing specific before its clinical worth was established.

I did not feel it to be my duty, at that time, to accuse any one of charlatanism, but it did seem that a great and *grievous* wrong was being perpetrated, and that too, mainly upon a class who already have been robbed and depleted to absolute poverty. I

therefore wrote the above note, and, that it might be read by those particularly interested, published it in a newspaper.

It was not necessary for me to publish anything for the medical profession—every physician who had read even portions of the published letters, particularly in the *Tribune*, had decided in his own mind that the discoverer's premises were erroneous from the very outset. The assertion that alcohol is not absorbed, but passes directly to the brain *over* the nerves is enough to startle any physician, and it is not probable that any medical man of intelligence would peruse, at any length, an article containing the following: "Alcohol stimulates the nerve center—that is the brain—by passing *over* the nerves externally. If a man were to get drunk by the action of liquor upon the nervous system as other things taken into the stomach act, it would be about four hours before he felt it." Vide *Inter-Ocean* report. At page 16 in the pamphlet alluded to before, under the head "My Theory of Dipsomania," the same statement is again made.

The above is what the discoverer of the cinchona cure tells us. The facts are, that every physiologist from Magendie's time, who in 1809 made conclusive experiments, to the present, including Carpenter, Flint, Dalton, Kuss and others have demonstrated that absorption took place only through the blood vessels or lymphatics.

We have been aware that different soluble and volatile matters were absorbed with greater rapidity than others, always, however, through their proper channels, and while nerves do not absorb alcohol in the sense of conveying it from the stomach to the brain, they are profoundly affected by it through their blood supply. It is pretty generally admitted, too, by physiologists, that the reason why alcohol has this power, is because of its great affinity for albumen—nervous tissues being highly albuminous readily unite with the alcohol, to the extent *possibly* of changing the chemical composition of nerve tissue, though this is not positively known. The ease and rapidity with which chloroform, ether, camphor and ammonia are taken into the system is familiar to all. They are very volatile, but enter the circulation by the same process that a substance does whose absorption takes four hours. We are told, however, that alcohol, like electricity, goes over the sensitive nerves straight to the nerve cells, reaching them in a few min-

utes. The discussion for one moment of such a theory is useless, an absolute waste of time, an insult to the host of patient and scientific workers in physiology. If the author of this new theory will take the trouble to ligate all the blood-vessels running to the brain in one of the inferior animals, he will find that neither alcohol or any of the more easily absorbed substances will produce any effect whatever upon that organ. Absorption never takes place in, or through, or *over* the nerves.

The pathology of this gentleman is, if possible, more unique than his physiology:

"Drunkenness is a disease, a disease specifically caused. You will perceive after examining this drawing, that right in the center of these cells—this is a drawing that I made of the nerve cells seen within the cerebellum or smaller brain, through a microscope of three hundred and fifty diameter power—well, that black mark represents a "yellow fermentive substance; that is found only in the brain of one addicted to the use of alcoholic drinks. This substance is created and deposited there through the action of the alcohol taken into the system, upon the sugar contained within the blood. That which we term the appetite is nothing more than an expression of the nutritive wants of these fermentive products. I believe that I am thoroughly posted in regard to the nervous system, and I am satisfied that I can cure every case of dipsomania if the patient will but take the first dose of my remedy. The effect of cinchona rubra is a cumulative one, and its action is to destroy the power of this yellow ferment."

The facts in pathology are as follows: The pathological changes within the brain have not been well determined—the post-mortem appearance never revealing a constant deposit. The mode in which a fatal termination arrives, the congested blood-vessels, or, perhaps the ruptured artery, and also that remarkable tendency to excessive serosity, giving rise to what has been called a "wet brain," have been frequently observed. Rokitansky, Rindfleisch, Wagner, Green, Delafield, and many others, with every facility and appliance, have spent years in the careful examination of diseased tissue. Some of these observers have made 30,000 autopsies, and have examined the brain with instruments of the highest magnifying power in the possession of the most experienced microscopists in the world, and yet no constant and undeviating change has ever been found. In acute alcoholic poisoning where death takes place within from thirty minutes to several hours, there is frequently no change

whatever in brain tissue. We find congestion of various organs and perhaps extravasations of blood in the brain and its membranes, but no change in nerve structure. Chronic alcoholic poisoning is however of a different nature. But even in this condition the patient may die of some other disease, or after a life-time of alcoholic excess die exhausted and comatose, and have in his brain and nervous system no change appreciable to the eye or microscope. A gentleman formerly under my care, and who was addicted not only to the alcohol but to the opium and chloral habit, fell dead on one of the streets of our city. The autopsy revealed the clot emptied from a ruptured blood-vessel but a minute microscopical examination showed no change or deposit in nerve cell. In other cases, however, we have found evidence of inflammation and hardening, particularly in what the eminent pathologist Virchow calls 'neuro-glia' (nerve cement) a kind of brain connective tissue. But it is not constant, and may be found in the brain of those not addicted to alcoholics.

Much has been published by this author to show that our knowledge of cinchona and its preparations has been greatly increased through his labors, but I am not aware that a single fact unknown to the profession, in regard to the therapeutical effect of this drug, has, up to this time, been advanced in any of his papers. The history of the drug is given in every work on Materia Medica, and its anti-periodic and tonic properties fully appreciated by all medical men of experience. That the red bark is as difficult to obtain as has been represented, and that the average pharmacist is so ignorant or dishonest as to make it impossible for the ordinary practitioner to obtain any of the cinchona preparations he may desire, I am not ready to believe. Indeed, all the statements made in regard to the scarcity of this drug, and in regard to a peculiar mode of manufacture, as well as its cumulative action, have been so put forward by the so called discoverer as to discourage any investigation on the part of the medical profession.

We have but few, if any, specifics, and medical men look with distrust and usually refuse to support any scheme *peculiar to, and in the interest of* any discoverer, or any theory based upon false, erroneous and antiquated hypotheses. The profession, however, is so ready for any scheme or plan, or medicine which will in any

measure stop the increase of drunkenness, that notwithstanding the erroneous views promulgated at the outset by Dr. D'Unger, if experience has demonstrated that the drug can in any considerable degree do what he claimed for it, I have no doubt that full credit will be given to the doctor for his discovery, and its use very generally recommended by the majority of medical men. The profession demanded, however, a patient trial at the bed-side before deciding upon the merits of the preparation. At the end of one year, during which I have had the opportunity of observing the effect of the medicine in more than fifty cases, and also having had three analyses made by competent chemists, it appears proper that I should make known to the profession, and to many non-professional inquirers, anxious and interested however, the results of this new treatment.

The medicine is dispensed in small flasks and is seen to be a reddish muddy mixture having a distinct bitter taste and resembling in both taste and appearance a mixture of one part of common *tr. cinchonæ co.* with three parts of water. Sometimes I have seen a darker preparation, especially in the hands of an older drunkard, which is evidently a near approach to a fluid ext. of cinchona. This was true of a specimen analyzed by Prof. Haines to which I shall again refer. The original preparation of bark is manufactured, or was during the early part of the year, by Messrs. Gale and Blocki. The concentrating process is known to the discoverer only. The preparation from Messrs. Gale and Blocki is, of course, an excellent one, a clear, dark colored fluid extract; the concentrated tincture, "*six concentrations, to physicians* $10.00 *per pint.*" prepared only by the discoverer, is a muddy mixture which alcohol will dissolve, showing that the concentrating process is performed by the addition of Lake Michigan water.

This expensive (?) mixture, some specimens of which contain as small quantity of bitter principle as one grain to the teaspoonful of water and alcohol is dispensed at from $5.00 to $10.00 per pint, with the following explicit

DIRECTIONS FOR USING DR. D'UNGER'S PURE CINCHONA RUBRA.—The dose is a teaspoonful (shake the bottle well before each dose) once every three hours, the first dose always to be taken in the morning, before

anything is eaten or drank. But if this dose of a teaspoonful causes any fullness or pain in the head, or any buzzing or ringing in the ears, the next dose must be a little less, say five drops; and so on, whenever there is any annoyance in the head, the dose must be made a little less.

Always remember, the dose must never be more than a teaspoonful, nor oftener than once every three hours. But if there is any desire for a drink of any kind of liquor between the doses, the party must moisten his or her mouth with a few drops of the tincture, but none of it (the tincture) must be swallowed except at the regular dose time.

There is no danger in using this remedy, but it must be taken as directed to insure success.

It is to be given only when the party is awake.

R. D'UNGER, M.D., *Discoverer*,
Chicago, Illinois, U. S. A.

The following is a correct copy of a contract given to one of Dr. D'Unger's patients. The original is in my posession:

Received of —— —— fifteen dollars, three-fifths of twenty-five dollars to be paid me for curing Mr. —— of dipsomania, the understanding being that if, at the end of ninety days, the said party is not cured, I am to return the fifteen dollars now received, and in case he is cured, the said Mr —— to pay me the remaining $10, I to furnish all medicine required.

R. D'UNGER, M.D.

And now what are the results? Exactly what one would expect after administering whisky and water with a small quantity of some bitter principle. I do not say that not a single person to whom this drug has been administered has stopped the use of liquors; but I do say that not one with whom I have come in contact has, and in many cases its use has rekindled an old desire which by resolution and education had been nearly conquered. I do not say that in every case following the administration of this nostrum, injury to the patient has come; but I do say that in every case which has fallen under my observation, this has been the result.

But what do the victims say. *Results:* CURES: this is what the people demand. "The proof of the pudding is in the eating." And so we come to the actual results. A mother writing in regard to her son, says:

DR. EARLE, Chicago, *Sir:*—You request to know how the cinchona rubra acted in ———— case. He is not able to answer, so I will write for him.

I think he knows very little about it, although he has taken the medicine, and thinks he has derived "no benefit from it." He came home sick with delirium.

Mr. ————, a cutter by occupation, makes the following statement:

I purchased a bottle of Dr. D'Unger's medicine, for which I paid him $5. He administered a dose to me before I left his office. The following night I felt the need of my usual stimulant, and drank the entire bottle of cinchona rubra. It seemed to do me the good that whisky usually did.

DR. EARLE—*Dear Sir:* Having heard that you wished me to give you my experience with the use of D'Unger's preventative and sure cure for drunkenness—cinchona rubra—it gives me great pleasure to furnish you with the following "bona fide" account of the effect it had on me:

In the first place, I wish to state that I acquired an appetite for whisky at an early age, having drank it more or less every day for the past sixteen years, and only abstaining from it when my money gave out, or when my credit was exhausted.

One afternoon (now about nine months ago) I met an old acquaintance —a thorough drunkard—J——C——, on the corner of Madison and Clark streets, in this city, both of us being without money, and with no earthly chance of getting a drink. He said to me: "Dave, I have a new scheme. I will go and see my old friend, Joe Medill (proprietor of the *Tribune*), he will give us a note to Dr. D'Unger, which will get us a bottle of his medicine, and that will cure us of drinking. I know several it has cured." He got the note, went to Dr. D'Unger's office, and received the medicine, with instructions as to how we should take it, with the assurance from him (Dr. D'Unger) that it would take away and destroy altogether the appetite for intoxicating drinks of every description. "I have cured," he said, "thousands of drunkards who were a great deal worse cases than you are." Well, John and myself took a walk by the lake front, for we had no home or boarding-house where we could go and take our medicine. After we had taken two or three doses, John asked me how I felt, and I told him it was burning the throat and stomach out of me. And in response to the same question from me, he said he thought it was making him drunk. Well, sir, instead of it destroying my appetite for drink, as D'Unger said it would, it certainly increased my appetite, for I imagined I would never get back from the lake-front to some of the hell holes I was in the habit of frequenting to get a drink of beer or whisky: and the next morning after taking D'Unger's cinchona, I found myself in a rum-hole on Dearborn street, rolling on the floor, covered with sawdust, with no hat, and without any shoes, both being stolen while I lay there beastly drunk. This is the CURE and the EFFECT that Dr. D'Unger's medicine produced on me.

I am now seven months old as a sober man in the Washingtonian Home, and I am happy to say that I am redeemed from drunkenness. The ONLY CURE that there is in this world, in my opinion, for a drunkard, is to abstain from all intoxicating drinks of every description, and if any man wants to become a sober and reformed man, no matter how great or degraded a drunkard he may have been, the Washingtonian Home is the place for him, for here he receives a moral, sober and religious education.

I am, sir, yours respectfully, D. B. WHELAN.

The following statement is made by the son of a State official in regard to the purchase of the medicine for a friend in a distant city, and its results:

I paid $10 for the first bottle, $10 for the second, $7.50 for the third, and the same for the fourth. My friend's appetite and inclinations are exactly the same as before taking the four bottles of medicine.

Mr. ———, a business man of the city, and the one who kindly furnished me his original contract from Dr. D'Unger, gives his experience as follows:

Consulted the doctor in April; was guaranteed a cure, and took a bottle of medicine. Have taken at least one-half dozen bottles since, and my appetite for whisky is the same as before I commenced, although the medicine was taken regularly according to directions.

Still another:

I have taken three bottles without deriving any benefit whatever, and upon ordering the fourth, requested the doctor to make it "double strength." This did me no good, and my appetite is the same as ever.

Dr. C. W. EARLE—*Dear Sir:* In trying to cure my appetite or desire for alcohol in all its forms, I was induced to consult Dr. D'Unger, and while under his treatment used two bottles of his cinchona. The only effect it had on me was an appetizer, and in fact I really believe my desire was stronger for alcoholic stimulants after using it. I gave it a fair trial—drank no liquor of any kind while using it—and in all candor must say it had no beneficial effect in my case. It may have proved a benefit in other cases—I only speak for myself. Respectfully, —— ——

CHICAGO, June 12, 1879.

DR. EARLE—*Dear Sir:* This morning I made a statement to you regarding the effects of the use of cinchona rubra upon my nervous system, but did not state fully how I was induced to take it. The facts are these, viz: Several gentlemen of my acquaintance who had been in the habit of drinking to excess, recommended it to me, and stated that since they had used it, they had no desire or appetite whatever for alcoholic drinks. This was also supported by Dr. D'Unger's statement that about three thousand persons who had been cured by his treatment of cinchona rubra, but since my sad experience lately in whisky drinking, I know of at least one of the gentlemen who recommended it to me who has returned to whisky, and so far as I know is drunk to-day. It may suit some temperaments, but certainly did him no good, and my late conduct proves it has done me none.

Respectfully, —— ——

CHICAGO, February 18, 1879.

DR. EARLE—*Dear Sir:* About a month ago I was feeling very nervous, and I thought it would be a good plan to try Dr. D'Unger's medicine. Accordingly I called on him, at his rooms in the Palmer House, and told him my condition—that the least little thing would frighten me. He told me the

trouble was in the nerve center, and that no doubt his medicine would give me great relief. I told him that my financial condition was in a dilapidated condition, and that I could not afford to pay him $25 for his medicine. He asked me if I could raise $5, which I paid him and took a half-pint bottle of his remedy. I took it according to directions, and by the time I had finished the bottle I was in such a nervous condition that I had to stop work. It seemed to make me more nervous than I was before I commenced taking it. When the Doctor sold me the medicine for $5 he seemed to be doing an act of charity, as he assured me that each bottle cost him $7.50. I feel now that I made him a present of the money, and I have no hesitation in pronouncing him a first-class fraud, and a quack. His medicine is nothing more than a tonic, and I have often bought better ones for twenty-five cents.

Respectfully, —— ——

P. S.—Had not the *Tribune* backed this man up I never would have called on him at all.

CHICAGO, June 13, 1879.

DR. EARLE—*Dear Sir:* You will here find my limited experience in the use of Dr. D'Unger's cinchona cure. I commenced taking it about three months ago, and at first it made my head feel very badly, about the same as an over-dose of quinine would; making my head feel enlarged, and causing my ears to ring. Immediately after taking it I would feel also inclined to take a drink to relieve the feeling. It had the same effect that a drink of whisky would have—that is a desire to follow it with another drink. I complained of this to my wife, but she thought it only an excuse on my part to get rid of taking the medicine, and she concluded she would try it, but with the same result, excepting she did not desire to drink after it.

I then made up my mind that there was alcohol in it. I poured some of it in a dish, then set fire to it, and found it to burn as freely as any spirit. I am fully satisfied it could never cure me from drinking, and, as far as I am personally concerned, I consider it an unmitigated humbug, and will have none of it. I prefer the Washingtonian Home. I have part of a bottle left, which is at the disposal of any unfortunate who may wish to try it, and not be obliged to pay the exhorbitant $15 for a pint of his "infallible cure." After my wife trying it and experiencing the feeling which she did, she was perfectly willing for me to discontinue its use.

You are at liberty to use this as you may choose.

RESULTS FROM ABROAD.

DR. C. W. EARLE—*Dear Sir:* In response to your request, I will state that I have been a resident of Minneapolis until recently; that I am acquainted with Dr. D'Unger, both personally and by reputation; that I was Grand Worthy Chief Templar of the Order of Good Templars for two years; that during said time I was aware that Dr. D'Unger claimed a sovereign cure for intemperance (through the newspapers) in cinchona rubra, but with the fact in view that I was gathering all the facts possible for my temperance work, I have never known of one single authentic instance, where cinchona effected a permanent cure. Respectfully,

A. M. HUTCHINSON.

MINNEAPOLIS, Minn., Jan. 9, 1879.

CHAS. W. EARLE—*Dear Doctor:* I have delayed answering yours of the 3d inst., that I might see other physicians concerning the D'Unger treatment. I can only hear of two cases that have been treated here. One with no benefit and the other (colored) seemingly improved. Should I hear anything that would be of use to you, will be glad to send the information.

Yours very truly, F. A. DUNSMORE, M.D.

MINNEAPOLIS, MINN., DEC. 28, 1879.

C. W. EARLE, M.D.—*Dear Doctor:* Yours of the 20th inst. is now before me and since its reception I have had opportunity of asking a number of our best physicians for their results with D'Unger's cure by cinchona bark. No one reports success but majority have not made experiment, their excuse being their knowledge of the doctor. I have prescribed but with no knowlege of result, which I would certainly have received had there been any success. Very truly yours, F. A. DUNSMORE, M.D.

C. W. EARLE—*Dear Sir:* In reply to your inquiry concerning Dr. D'Unger and his pretended cure for drunkenness, permit me to say that I am now and have been for several years a resident of Minneapolis: that I am personally and well acquainted with Dr. D'Unger, and while I have been constantly engaged in the temperance work in that city, I do not know of one individual, nor have I heard of one who was cured, or who claimed to have been cured through the instrumentality of cinchona rubra. I once induced a man, who had been a hard drinker, to partake of the cinchona rubra, with a view of testing its merits, but the result was very unsatisfactory, the partaker complaining of an almost insatiable thirst for drink for several hours after taking the medicine. Very truly yours,

J. C. ERWIN,
Grand Sec'y Good Templars, Minn.

Dr. R. J. Patterson, formerly Professor of Medical jurisprudence, Chicago Medical College, and at present the proprietor and superintendent of Bellevue Place, a private institute for the treatment and cure of insane females, Batavia, Ill., furnishes me the history of a case which illustrates not only the usual (as far as I can learn) result, but the cost of making the trial:

A lady, the wife of an eminently respectable business gentleman, residing in a neighboring city, had become addicted to alcoholics—she was possibly a victim to the morphine habit—and had been committed to an asylum in the city several times but to no purpose. She seemed incurable. At last she came to Chicago, and was guaranteed a cure by Dr. D'Unger. One hundred dollars was paid for the guaranteed cure. While she was taking the medicine and under observation, it seemed to be all the stimulant necessary, but a few days after her return home she was again under the influence of alcoholics, and had recently been an inmate of Dr. Patterson's retreat.

RESULTS AT THE NATIONAL HOME FOR DISABLED SOLDIERS.

A short time after I published my card in the *Tribune*, the following was displayed as an advertisement:

Drunkenness Cured—Facts vs. Folly.—"National Home for Disabled Volunteer Soldiers, Dayton, O., Jan. 6, 1879.—*Dr. D'Unger, Chicago:* After a fair trial of three months in two cases, seemingly incurable, I am glad to say that the result has been all that you could claim and all the most sanguine could hope for. Respectfully, E. F. Brown, Governor."

A few days since I addressed a letter to Col. Brown, asking him if, after a continued trial of the remedy, he could still recommend it. His answer is probably explicit enough for even the discoverer of the so-called specific for drunkenness:

Dayton, Ohio, Dec. 12, 1879.

Dr. Chas. W. Earle, 37 Park ave., Chicago, Ill.—*Dear Sir:* Your favor of yesterday is received, and contents noted. I gave the cinchona a fair trial, and found it not better than any other advertised nostrum for the cure of intemperance. But it is proper to say I was not more sanguine of success when I wrote Dr. D'Unger in regard to the purchase of a quantity of the remedy than the facts seemed to warrant. He claimed for it that after three months' use the desire for all stimulants would pass away, and a cure be wrought, and in the two instances to which, doubtless, you refer, the men did keep sober that long. Thus far the remedy, or the men's resolution—it is hard to tell which—was efficacious, and thus far only was I sanguine. I do not hesitate now now to pronounce it a humbug.

Very respectfully yours, E. F. Brown, Governor.

Although the uniformity of these results may be somewhat monotonous and lengthy, and the reader may long for the record of at least one reformation, it is impossible for us to give it. But as no record of so-called cures would be at all complete without slight reference to the published cures from among the inmates of the Washingtonian Home, I must be pardoned for giving the completed history of those four remarkable (?) cures, already referred to in the opening page of this paper and found at page fifteen in the doctor's treatise on dipsomania.

He says: "at the Chicago Washingtonian Home, four of the patients of the worst description * * * have been completely cured by the use of my cinchona rubra. These patients can be seen personally by parties interested." The only truth in the entire sentence is that they can be seen. I have seen them; all are or have been drunk. The history of case No. I. has been

partly given in one of the letters which appear above. A few days ago a commercial traveler called at the young gentleman's residence, in the central part of our State, and found that the day before, the young man while under the effect of liquor had demanded money of his father, and on being refused, the reformed man (?) "who may be seen by parties interested," proceeded to chastise his paternal relative with an ax handle.

CASE II. Was a Southern gentleman of position and education. He has made repeated efforts at reformation, but to no effect. At last a prominent business gentleman of this city became interested in him and at the commencement of the cinchona craze paid $25.00 for the reformation of the case we are considering. The patient professed to be greatly invigorated by the use of the medicine, and believed now his reformation complete. While this gentleman was taking the cinchona of Dr. D'Unger I asked him to compare it with an aqueous fluid extract of red bark made by Sargent & Co., of this city for my use. The preparation which this firm had made for me contained one pound of bark to the pint, and was absolutely free from alcohol. It was an exceedingly strong preparation, and would do for a patient all that Peruvian bark is capable of doing. He tasted this aqueous ext., and immediately said to me, "you haven't got it. It's not the thing." I had given him a dose of cinchona containing at least twenty times as much of the alkaloid as he was taking in the D'Unger preparation, but "it wasn't the thing." It did not contain from two to twenty-four per cent. of alcohol, which our reformer's tincture does, and hence these tears. After taking several bottles of this nostrum this gentleman engaged in business as a commercial traveler, I think, but soon returned to the city drunk. He entered Mercy hospital for a time but after leaving that institution again relapsed, and was reduced to a very pitiable condition. Upon my personal solicitation he was again admitted to the Home, and after a season resumed business. He is now in a distant State, and his future as regards drinking, is exactly what he makes it. He is a strong, robust man and can abstain from drink if he wills.

CASE III. Is a newspaper man, an editorial writer, one of those men who can paint with words; a most able, accomplished and

affable gentleman. He took the D'Unger mixture to remove the appetite. While taking it he was engaged in business, and at length determined to visit the East, his former home. He returned to this city drunk, his money squandered, his family discouraged. Repeated efforts were made by several to even sober him up without admitting him to the Washingtonian Home, but without success; and notwithstanding a large amount of abuse had been directed to the Home and its physician, and encomiums and peans of praise showered down on "the greatest benefactor of his race," as the discoverer of this cure has been called; notwithstanding all this, the man was again admitted and has again gone out and is at his accustomed work.

CASE IV. This man was the last one to hear from—the only one in the list in whom "the greatest discovery of the age" had not been demonstrated a failure. Three weeks ago his wife came to the institution referred to above and stated that he was drinking, and his position lost. He is now in the Home, where, to use the words of my friend D'Unger, "he may be seen by parties interested."

FROM THE MEDICAL JOURNALS.

The Edinburgh (Scotland) *Medical Journal* says of the cinchona, or Peruvian bark, remedy for drunkenness:

"Having been pressed by the friends of an unfortunate drunkard to try this new remedy, we administered it exactly as directed. We found the red bark a good tonic—this and nothing more. Our patient visited us some time after his convalescence, with a powerful odor of alcohol about him, and we ascertained from his distressed friends that he is pretty much what he was. We are inclined to think the whole thing another American dodge—and a very clever one. The moral is a sad one."

I beg leave to say to the editor of this journal that although this is an "American dodge," the medical profession is not responsible for it. The author of this humbug is not accredited by any medical society or association in our broad land.

The *Medical and Surgical Reporter*, of October 18th, says:

"We duly noted this vaunted cure on its announcement; we now chronicle its worthlessness. Dr. A. P. Hayne, superintendent of the Home of the Inebriates, San Francisco, writes thus of it, after full trial, in the *Western Lancet*:

"In no single instance have I found it to possess the slightest power in disgusting the patient with liquor or in any way diminishing his or her

appetite or craving for intoxicating drinks. On the contrary, they have all freely confessed to me that the anticipation and the pleasure of a drink was as strong as ever, In no case have I seen whisky refused when offered and in the majority it has been asked for. I know of an instance, in private practice, in which a person has stayed at home and taken the remedy all day, for several days in succession, and gone out in the evening only to be brought home thoroughly intoxicated.

ANALYSIS.

DR. EARLE—*My Dear Doctor:* The following is the result of the examination of the two specimens you left at the college:

The darkest colored liquid in the salt-mouth bottle contained of

Alcohol.....16 per cent.
Water.....85.19 per cent.

Total solid matter about six grains.

The liquid in the second bottle contained of

Alcohol.....2.7 per cent.
Water.....98. per cent.

Total solid matter about four grains.

The percentage is by volume, and as water and alcohol mixed, contracts in volume the apparent discrepancy in the figures is explained.

The precipitates found in each specimen were, undoubtedly, caused by the addition of water to an alcoholic tincture as they were soluble in alcohol.

The amount of solid matter was so small that I did not attempt to ascertain the alkaloids present. Yours truly,

P. S. HAYES,
Prof. Chemistry, Woman's Medical College.

CHICAGO, Dec. 22, 1879.

PROF. C. W. EARLE, M.D.—*Dear Sir:* The sample of Dr. D'Unger's cinchona rubra preparation, which you placed in my hands for examination has been analyzed, and found to contain twenty-four per cent. of absolute alcohol. Yours truly, WALTER S. HAINES, M.D.,
Prof. of Chemistry and Toxicology,
Rush Medical College.

So much then for a specific which is persistently advertised as curing *every case* of drunkenness. The scheme is an exceedingly ingenious one. The patient, supposing he is supplied with a wonderfully powerful drug, possessing great tonic and antiperiodic properties, is really given an amount of alcohol varying from two to twenty-four per cent., the remainder of the nostrum being water. In this we have a very small amount of a bitter principle, presumably Peruvian bark. The first dose is *always to be taken* in the morning, before anything is eaten or drank—see printed instructions. This first dose of alcohol and water,

with a little bitter, before anything is eaten or drank, supplies the usual first drink which is so urgently demanded by one addicted to alcoholics. Then a teaspoonful every three hours, and if there is a desire for a drink of any kind of liquor between the doses, the party must moisten his or her mouth with a few drops of the tincture—twenty-four per cent. alcohol. Now, it is a well known fact that a man who has once acquired a taste for alcoholics, but by resolution and education of his moral sense has been enabled to reform, can not, with safety, taste a drop of any kind of liquor. In many of these cases a desire for liquor remains, and with the hope that this longing may be destroyed, many have been induced to take this prescription, and in *every case*, as far as my observation extends, they have again fallen. But I cannot prolong my paper. Much remains which might be said. *Every man*, with one exception, as far as I can learn (if I am mistaken I shall be glad to be corrected), whose reformation was published in the *Tribune*, is or has been drinking. I saw one in the County Hospital a few days since; he remained sober for three months, while taking the cure, and then drank ordinary whisky for nine months; and yet this man assured me that he was reformed; he had no taste for liquor, and yet he had been under its influence for nine months. Another man who formerly drank very largely of beer and who was occasionally unkind to his family, after a course of D'Unger tincture, had selected whisky as his beverage. He drank less whisky than beer, but beat his wife more. It would seem from this that beer is the better family drink. Others are taking the Peruvian tincture during the forenoon while business is active, changing to a different liquor after business hours.

Before concluding it is perhaps proper for me to say that I understand well that an *expose* of this humbug may be followed by a deluge of abuse and criticisms, which is not particularly pleasant. If, however, friends will bear in mind that every letter of abuse which has, up to this time, appeared, has come directly or indirectly from those who have been discharged, or have had friends discharged, from the Washingtonian Home, either on account of violation of some rule of discipline, or because they were not proper persons for us to retain, the animus of these letters will be seen. The committee on admission and discharge in that

institution cannot, and does not, expect to do its full duty without some very severe criticism.

CONCLUSIONS.

1. A chemical examination of the D'Unger preparation of so-called concentrated cinchona rubra shows it to be a diluted mixture of fluid extract of cinchona with water.

2. The amount of absolute alcohol is from two to twenty-four per cent.

3. The amount of bitter principle is as small, in some specimens as one grain to the drachm.

4. Engaged in a hospital practice where I have prescribed for nearly four hundred cases of alcoholism during the year, in addition to a private practice in which I see, perhaps, as many of these cases as the average physician, I have yet to see the first reformation from its use.

5. *In not a single case* has the use of this preparation disgusted the patient with the taste of alcohol.

6. The taste for stimulants in many cases remains long after a reformation is complete. Indeed, it is never lost in some, and a constant fight goes on between a desire for some form of stimulants and duty made plain by the education of the moral sense, to abstain from them. Numbers of these men, encouraged by the repeated assertion that this taste could be certainly and safely destroyed, have taken this medicine. In *every case* it has been the direct and only cause of these patients returning to their former sad and terrible habits. It has caused the downfall of every one who has come under my observation belonging to this class who has dared to touch it.

7. From a careful investigation of all the facts in my posession, I desire to place on record that it is my belief that this cinchona treatment has made more drunkards during the past year in this city than any one saloon.

## Article IV.

Expert Testimony in the Hayden Trial. By Wm. T. Belfield, M.D., Demonstrator of Physiology, Rush Medical College, Chicago.

On the afternoon of September 3, 1878, the dead body of Mary Stannard was found a short distance from her father's house, near Middletown, Conn. The county coroner was notified, an inquest held, and a post-mortem examination made. The latter revealed a large bruise on the side of the head, and a deep incised wound of the throat, whereby the common carotid artery and internal jugular vein of one side had been divided; also, a severe contusion of the left hand. There was found a small pool of blood beside the body. The examination, made by local physicians, appears to have been quite superficial and incomplete, eliciting no further information of value. Speculation, as to the perpetrator of the crime, was rife, some even including the theory of suicide. Various facts, however, directed suspicion toward a Rev. Mr. Hayden, a near neighbor, in whose family Mary had been employed as a domestic. It was more than hinted that Hayden had murdered the girl in order to prevent the natural consequences of a criminal intimacy with her; and it was suddenly noised abroad that Hayden had, on the day of the murder, purchased an ounce of arsenic of a Middletown druggist, ostensibly to poison rats.

A second examination of the remains was made eight days after death, conducted this time by men of established reputation. The uterus gave evidence of disease, but not of impregnation; the right ovary presented a tumor as large as a walnut, which was reserved for microscopical examination; the stomach, which exhibited the appearances of acute inflammation, and several other organs, were removed and sent to a chemist, who found 90 grains of undissolved arsenic in the stomach, and traces of the drug in the other organs. Besides this account of the examination, the prosecution has proven the purchase of the arsenic, by Hayden,

just previous to the murder; the girl's avowal to certain female friends of her pregnancy, and that, too, by Hayden; her statement that she had conversed with Hayden as to the best means for avoiding discovery; that Hayden had promised to procure for her some "quick medicine;" that she was going to meet him that afternoon to get this medicine; and finally, it is proven that she took with her a napkin and safety-pin, both articles having been found, indeed, on her dead body.

The theory of the prosecution is simply that she met Hayden as agreed, received from him a dose of arsenic, and was subsesequently stabbed with his pocket-knife. The defense offer no theory of the murder, but content themselves with presenting objections to the evidence against the prisoner.

My purpose is to discuss the questions of expert testimony in their scientific aspect only, without regard to their legal bearing upon this trial.

*First.*—Is it possible to identify a given specimen of arsenic? Dr. E. S. Dana says, yes, within certain limits—a statement indorsed by Prof. Wormley, of Philadelphia. Dr. Dana affirms that the varying temperature at which the arsenic vapor is condensed, in the process of manufacture, and the varying fineness of the subsequent grinding, cause such diversity in the size of the crystals and in the proportion of fragments, as to render identification easy—basing his conclusions chiefly on three months' residence at the arsenic factories of England, and including the examination of one hundred and ten specimens.

This assertion, apparently so captivating and satisfactory, must be dismissed as "not proven." The arguments against it are several: the lack of experience in the examiner; the admission, by Dr. Dana himself, that several specimens may be subjected to similar conditions in the process of manufacture, and may hence be undistinguishable; the fact that the same jar may contain portions of different packages; the plausible assertion of practical millers, that the particles are often of variable fineness, even at a single grinding, in consequence of a lack of parallelism between the stones, and of irregularities in their surfaces. These facts force us to the conclusion that while there are wide differences in the microscopical appearances of different specimens of arsenic

which render *distinction* sometimes possible, yet *identification* is, as yet, impossible.

*Second.*—Is it possible to determine by the microscope that a given stain does or does not consist of human blood? On this point were obtained the opinions of two leading experts—Surgeon Woodward and Dr. Treadwell. It is a matter for congratulation and pride to microscopists, that these two gentlemen, representing, as they are reputed to do, the extremes of conservative and progressive opinion in this matter, should differ in no essential point as to the technicalities involved. The differences of opinion, important as they are, arise from the greater experience, and hence, very naturally, the greater caution of Col. Woodward. They agree that while the fresh blood of man can be generally distinguished from that of most of the domestic animals, and from that of all animals not mammals, yet there are certain animals whose blood-corpuscles are so nearly identical in size with those of man as to render positive distinction by the microscope impossible. Dr. Woodward, however, after alluding to the extreme variability in size of the corpuscles, in the same as well as in different individuals, objects to the assumption of $\frac{1}{3200}$ inch, or any other figure, as the exact average of human corpuscles. He insists upon the impossibility of knowing the actual average, since successive examinations give varying measurements. In consequence of this fact, and of the further impossibility of assigning limits to the possible size of individual corpuscles, he urges the necessity of extreme caution; and insists that when attempting to distinguish corpuscles whose asserted "averages" (usually Gulliver's) differ but little—those of man and the dog, for example—the microscopist shall speak in terms of probability only. These remarks apply to blood freshly drawn upon glass slides; the uncertainties are much increased if the corpuscles to be measured have been obtained from a stain upon cloth, a clot, etc., and have been artificially "restored" to their former size. In this case the chances of success are diminished by the introduction of a new and important source of inaccuracy.

These sentiments will, I think, meet the approval of every conscientious microscopist, in part at least even of Dr. Treadwell himself. For I have in my possession a letter from Dr. Tread-

well in which he expressly disclaims the ability either to identify dried human blood or to distinguish human from canine blood. Dr. Richardson, the well-known Philadelphia expert, makes the same statement for himself.

Dr. Woodward then proceeds to criticise Dr. Treadwell's assurance in basing an opinion upon an average of 15 corpuscles (found in the thumb-niche of Hayden's knife-blade) as entirely unwarranted. Dr. Treadwell maintains that the microscopist needs only 15 or 20 corpuscles in order to ascertain a fair average, and that he can "restore" dried corpuscles to their exact size. He then assumes the aggressive and criticizes Dr. Woodward's trust in the measurement of the photographic pictures of blood-corpuscles instead of the images as seen in the microscope.

This testimony is most opportune. In these days, when the laxity of the bench and the unscrupulous eagerness of the bar put a premium upon reckless extravagance of assertion and even falsehood on the part of expert witnesses; when a man is permitted to swear that he can not only distinguish human blood, but can even identify an individual by the size of the blood-corpuscles; in these days it is especially fortunate that we receive from the foremost microscopist in America—an unbiased witness—the exact state of microscopical science in this matter. It is to be hoped that the medical profession will do its part—a considerable one—in the propagation of the truth, and that there will result a more general knowledge of what the microscope can *not*, as well as what it *can* do, in the detection of crime. In this connection it is interesting to note, though hardly pertinent to the trial, the assertion of both Drs. Woodward and Treadwell, that it is impossible, in the present state of science, to diagnosticate disease by any abnormalities of appearance in the individual corpuscles. (Let me remind the medical reader that this is not a denial of ability to recognize leucocythæmia, remittent fever, etc., which are distinguished, not by the peculiarities of individual corpuscles, but by their relative numbers and the presence of spirillum). This is, however, rather damaging to the claims of certain gentlemen that in consumption, syphilis, and perhaps other diseases, the corpuscles present characteristic appearances.

*Third.*—Can an ordinary ovarian cyst, no larger than a walnut, occasion the symptoms of early pregnancy? Strangely enough, two Yale professors testified in the affirmative, although, as was subsequently proven, there is no authority nor recorded instance warranting such an assertion. Every medical man (except the two professors) knows that ovarian tumors usually attain a larger size before attracting the patient's attention to their presence and *then* not by causing symptoms of pregnancy, but by their pressure on other organs and by the local pressure of the abdominal walls. It is by no means seldom that one finds, post-mortem, ovarian cysts larger than the one in question, whose existence had never been suspected by the patient, nor even by her medical attendant.

*Fourth.*—How much blood would flow from an incised wound in the common carotid artery of a woman of average weight? And how much would be required to saturate firm earth to a depth of two inches, and over a circular area eight inches in diameter? The answers to these questions were, of course, speculative, indefinite and worthless.

Several other questions were discussed in the testimony which are unworthy of attention from a scientific standpoint, however well they may have served the purposes of the attorneys in browbeating witnesses, and confusing jurors. Such were these: Could arsenic, inserted into the stomach of a corpse, so permeate the tissues by osmotic action as to occur in appreciable quantity in the brain and other organs? Would arsenic, placed in the stomach after death, induce the reddening and other signs of inflammation which it causes in the living stomach?

Now, while the expert testimony adduced will probably have but little effect on the verdict in this trial, it will have a far-reaching influence in determining the medical jurisprudence of the coming decade. For, besides the authoritative expression of opinion on several important points, we have acquired a clearer appreciation of several serious defects in our present system of expert testimony—defects which contain a large element of peril to society in consequence of the very importance of the expert witness. For the expert on the witness-stand is sometimes a far more potent figure than either judge or jury, and reads the sen-

tence which the latter merely execute; hence the over-confident expert, even though of honest intentions, may be a more dangerous man to the community than the very criminal whom he prosecutes; while the dishonest expert is far more dangerous. I will enumerate a few of the evils which detract from the value of expert testimony as at present conducted:

*First.*—The employment of incompetent persons. This has received illustration not simply in the testimony with regard to the ovarian tumor, already referred to, but also in the preliminary trial, during which a *soi-disant* expert declared that a stain on a certain stone was made by blood. A subsequent examination by a competent microscopist demonstrated to the satisfaction even of the "expert" himself, that the supposed blood-corpuscles were the spores of a minute plant. Another witness at the preliminary trial denied the possibility of distinguishing human blood from that of a chicken.

*Second.* The employment of pretenders and charlatans.

*Third.* The partisan character of the testimony—the expert, like the lawyer, being hired by one party and being expected to testify first for the client, and second to the truth; the amount of the fee being in some cases measured by the expert's devotion to the cause and even dependent upon the result of the trial. Another unfortunate feature is the too frequent practice of introducing as evidence chemical experiments, microscopical exhibitions and the like, requiring special training and skill for their appreciation. To the juror of even average intelligence such a proceeding must savor largely of quackery, and must seem an attempt to manufacture reputation and authority by a cheap display of knowledge. The expert's testimony is procured because of his supposed familiarity with subjects of which the jurors are ignorant; and the weight carried by his evidence is dependent upon and largely proportionate to his skill and experience. In so far, therefore, as he attempts to fortify his evidence on some occult point by an appeal for corroboration to the jury, in just so far does he belittle himself and his opinion. True, it may occasionally happen that the expert can render intelligible to the jury the facts and laws upon which his opinion is based; yet the real object of the average scientific display in the court-room is not to enlighten

jurors upon a question at issue but rather to impress upon them a due sense of the expert's importance.

In consequence of such influences as these it has come to pass that the variability and contradictory nature of medical evidence is a mere byword in the mouths of attorneys. That is, indeed, a desperate case in which the assistance of a medical witness can not be secured, while the standard of chemical, microscopical and other expert testimony is far from satisfactory.

It might be presumed that the dishonest or incompetent expert would be detected by opposing experts, and so he is ultimately; yet that does not necessarily destroy his business. Many a quack doctor who claims to cure cancer, consumption or drunkenness, does a thriving business because conscientious, reputable physicians admit their utter inability to perform such miracles. And so the quack microscopist who claims the ability to identify human blood, or an individual's hair, or to do anything else which conscientious, reputable microscopists admit is impossible, is largely patronized by States' attorneys and others who desire to establish just such points. A heavy responsibility rests upon the legal profession in this matter; for attorneys do not hesitate to employ for the accomplishment of their ends witnesses, expert and other, of whose moral worthlessness they are convinced, and in whose statements they have themselves no confidence. An instance of this kind came to my ears by the personal confession of the attorney, a well-known lawyer of this city, and I have no doubt that he could have lengthened the chapter, had he desired.

It is eminently desirable that these abuses shall be corrected; yet to propose a remedy would be premature until the popular realization of the evil calls for it. Perhaps we shall ultimately find the best way to be that adopted in Germany, where scientific experts are government officers whose comfortable salaries, paid for life or during good behavior, remove the temptation to evil or rather transform it into an impulse for good.

## Article V.

### The Mechanical Adaptation of the Obstetric Forceps.

By Philip Adolphus, m.d.

(During a joint discussion before the Chicago Medical Society, on Oct. 1, 1879, the following paper was read.)

I address you on the mechanical adaptation of the obstetric forceps. I understand this to apply to its mechanical adaptation to the obstetric canal of a woman in labor. Not the osseous pelvis merely, but the pelvis covered with soft parts, whose terminal outlet is not at the point of the coccyx, but at the anterior commissure of a greatly distended perineum—a distance of ten to twelve inches during labor.

The fundamental principles of midwifery are deduced from the correspondence between the fœtal dimensions and those of the pelvis.

The fœtal head, ovoidal in form, generally presents itself at the superior strait, with one of the extremities of an oblique diameter strongly flexed upon the trunk, so that its smallest diameter shall be parallel to the strait.

The central line traversed by the fœtus, from its entrance into the superior strait until its final exit from the vulva, whilst the patient is lying on the back, is a strongly marked curve, whose concavity is turned almost directly upward.

The contractions of the uterus, the abdominal muscles, and the resistance of the perineum, propel the child through the obstetric canal.

The inclined planes are supposed to play an important part in the mechanism of labor, for their direction has an immediate influence upon the movements which the head of the fœtus performs in the excavation.

The head, when arrested during labor by local conditions or general complications on the part of the mother, requires delivery by an instrument which must be adapted to the form and size of the child's head as well as to the anatomical conformation of the pelvis and soft parts of the parturient canal. The straight forceps, having merely a cephalic curve, are only employed when

the head is within the pelvis; it has short handles and is without shanks; therefore, it is a feeble instrument, either as a tractor, lever or compressor, being only useful when very little tractile power is required. But the long, double-curved forceps, having both the cephalic and pelvic curves, with lengthened blades and shanks, which can traverse the pelvis, from its entrance into the superior strait until its exit from the vulva, without inflicting injuries to the fœtus and the mother, is an instrument which, by its tractile, compressive and leverage powers, can and does save many a fœtus from perforation. It is the only instrument that joins mechanical adaptation to all portions of the parturient canal with power, and should be the only one adopted by the busy practitioner as worthy of confidence in all cases where forceps are indicated. It is a tractor, secondarily a compressor; occasionally limited lever-like movements are admissible, but rotation must not be performed with it, for the fœtus will rotate spontaneously within its blades during traction, owing to the anterior and posterior planes on either side of the cavity and the resistance of the floor of the pelvis.

The governing factors in the use of the long forceps are "anatomical knowledge, mechanical skill and common sense;" from these and experience the following rules have been deduced:

The position of the head does not determine the position of the blades; but the position of the blades is always determined by the anatomy of the mother.

Therefore, the forceps must be applied along the sides of the pelvis, and its pelvic curves must correspond to its curved axis.

Its introduction is governed by the direction of the obstetrical canal, the globular head of the child, and the cranial and pelvic curves of the instrument.

"In its introduction and removal it follows the circle of which it forms a part;" for it will always be coincident with the obstetric canal, from the superior strait to its outlet.

It is fit that the exact position of the head should be known, but such knowledge is not essential to its safe extraction; on the contrary it is not correct to apply the forceps to the sides of the fœtal head when its position is oblique or transverse, for if its pelvic curves are twisted, injury must be inflicted to the mother.

## ARTICLE VI.

GYNÆCOLOGY IN THE SEVENTEENTH CENTURY.* By DR. JAMES I. TUCKER, Chicago.

The opinion is too generally held that gynæcology is a branch of medicine that lay fallow and unused in the middle ages and even in more recent times, but that this is not the case there are many indications to show, among them a treatise on the diseases of women which appeared in the seventeenth century.

The book is entitled: "*L'Hydre Féminine Combatve par la Nymphe pougoise ov Traité des Maladies des femmes, Gveries par les Eaux de Pougues, par M. Avgvstin Covrrade, Docteur en médecine. A Nevers par Iean Millot, imprimeur et libraire de Son Altesse Serenissime de Mantone. MDCXXXIV.*

The author of this work is Augustin Courrade, physician to the Princess Maria von Gouzaga, afterwards Queen of Poland, who resided sometimes in Paris, sometimes in Pougues, and at the latter place made use of the medicinal springs. This work which was printed in 1634 is really an advocate of the curative properties of the waters of Pougues, but it consists of two parts, the first of which treats of the diseases of women. According to the bombastic literary taste of the period, the book not only bears the allegorical title "*L'Hydre Feminine*," but the subject is also allegorically treated. The first part contains "The seven heads of Hydra," meaning seven chapters on diseases of women.

The first head of Hydra is *Sterility.*

Sterilty does not happen to women alone, as is generally supposed. We observe it in males also, where it is called impotence, although there are sterile men who are not impotent. Sometimes the fault is neither in the man nor the woman, but in a dis-harmony between the two, the cause of which is unknown.

The function of the ovaries is of course unknown to the author. Generation was to him the result of the mixing of the male and female semen.

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* *Annales de Gynécologie*, (1879.) *Deutsche Archiv für Geschichte der Medicine, etc.* (*Zweiten Bandes Drittes Heft.*)

The causes of sterility in women are internal and external.

To the former belong the *atmosphere* for many winds make women sterile.—Hippocrates.

*Drinking and eating in excess*, more especially drunkenness, produce sterility. The same is true of violent passions, particularly hate and jealousy.

*Immoderate bodily exercise* belongs here. The author would doubtless have spoken of dancing, but out of respect for the princess, who was very fond of this amusement, he was restrained.

*Astrological influences* are named, but he merely mentions them as they appeared to him little worthy of belief. The same is true of *magic* and *witchcraft*.

*The internal causes are seven in number*. General and particular irregularities of pregnancy. Among the first, is that which was later called *temperament*.

*Faulty condition* of the *female semen* in quality and quantity.

*Disturbances of menstruation*, which are spoken of more fully in the second head of Hydra.

The *fluor albus* (in third head of hydra.)

*Malformation of the uterus*. He mentions here occlusion of the vulva by a membrane firmer than the hymen, and a deviation of the collum uteri, which hinders the entrance of the sperma "*tortu et oblique*."

*Diseases of the uterus*. Tumors, abscesses, callosities, etc, which are described in full in the other heads.

Sterility can be treated exclusively by "*des fumées, vapeurs, racines, fleures, herbes, poissons, animaux*," but he avoids giving these in detail lest they be misused.

The four "*Intemperies générales*" are to warmth, cold, dryness and moisture. These not seldom combine as in the atmosphere, as dry cold, warmth and moisture, dampness and cold, and dry heat. Three of these he combats with the waters of Pougues. The efficacy of these waters depends upon the nitrum which they contain, and he compares them in this respect to the waters of the Nile. The Egyptian women are prolific because they drink large quantities of the waters of the Nile which are rich in saltpeter.

The *second head of Hydra* treats of faulty menstruation, and is really only a physiology of menstruation.

The menstrual blood does not seem to him to serve as nourishment for the fœtus, as Hippocrates thought. He looks upon it as impure blood which Nature discharges.

At the time of puberty the female semen forms under the influence of a motion, which the natural warmth increases; this motion extends into the blood-vessels, through which the impure blood escapes. There is, therefore, a reciprocal relation between menstruation and the formation of female semen. Without this the woman cannot conceive. The female semen is produced during the menopause, when the blood ceases to flow.

The unfruitfulness of advanced life is explained by the loss of the functional action of the semen, through the departure of the "*esprit génératif.*" Through this circumstance the uterus becomes dry, the little mouth-like endings of its veins are obliterated, so that neither the menstrual blood nor that which nourishes the fœtus can find an outlet. The impure menstrual blood retained in the body, mixes with that which serves in the formation of semen and the nourishment of the fœtus, and hence conception is impossible.

If the menstrual flow is excessive, much good blood is lost with the impure, whereby the organism is weakened and the seed loses its "*esprit génératif.*" Thus sterility may be the consequence of menstrual disturbance.

Menstruation is suppressed by causes external and internal.

To the first belong abstemiousness in eating, drinking and in everything of a sensual nature, as we observe among religious people; passionate excitement of the mind—as fear, melancholy, love-sickness, etc.

To the internal causes belong obstructions of the vessels, which result either from failure of conformation or an immoderate collection of fat. This accumulated fat stops up the vessels, or chokes them by pressure. Ruptures and flexions of the uterus have like effect.

Profuse menstruation has various exciting causes. Either the body contains too much blood, and the vessels burst from the increased pressure, or the blood is in bad condition.

*The third head of Hydra is fluor albus.*

Under the head of fluor albus we are to understand the different fluids of the body. These fluids are the blood, the gall, the melancholy and the phlegm, and whenever any one of these is foul, the fluor albus has a different color. It is white from blood, yellow from the gall, black from melancholy, or livid from phlegm. The black flow is most seldom. The uterus has nothing to do with the flow.

From this fluid "gonorrhœa" can be contracted, which, however, must not be confounded with that which "*est contractée pour avoir monté sur les chevaux de Naples.*" This gonorrhœa is a spermatorrhœa of women, and is very dangerous.

*The fourth head of Hydra is love, nymphomania and melancholy.*

The fluids are retained in the vessels of the uterus, and this forms winds which pass up to the brain; "Hence these tears."

*The fifth head of Hydra is suffocation (erstickung) of the uterus.*

Under this head the author includes hysteria and every form of it which is accompanied by convulsions. It is caused by pressure on the diaphragm from the side of the uterus, either on account of congestion of this organ or contamination of the menstrual or seminal fluid.

*The sixth head of Hydra is formed by the pale complexion, chlorosis.*

Chlorosis is the result of retained menstrual fluid, and alteration of the taste; there is a false desire for things which do not nourish. Thus the blood is spoiled, it loses its normal color, and the tissues of the body bleach.

*The seventh head of Hydra is represented by tumors of the uterus.*

The physicians of the seventeenth century had a tolerably correct idea of the diseases of the uterus. They recognized engorgement, which they called œdema; they recognized phlegmon, carcinoma and ulcerated cancer, and congestion of the uterus, which they called erysipelas. Granulations and ulcerations of the collum uteri are described so exactly that one would think that Dr. Courrade must have known and used the speculum.

# Clinical Reports.

## NOTES FROM PRIVATE PRACTICE.

### ARTICLE VII.

*Gunshot Wound in the Head.—Bullet Imbedded in Brain-Substance.—Death on Eleventh Day.— Post Mortem.*

Henry K., aged 32, a robust, well-formed coachman, attempted suicide October 1st, 1879, by shooting himself through the head. He fired at the centre of his forehead, while lying on his back in bed, the aim being rendered more accurate by means of a small mirror which he held in his left hand, while the pistol, which carried a No. 32 ball, was held in his right hand. I saw him a few hours after the injury was received, and found him lying on his back in bed, perfectly conscious, with a bullet wound in the middle of the forehead, one inch above the level of the supra-orbital ridges and one-eighth of an inch to the right of the mesial line.

From the wound there had been copious hemorrhage, as his face, neck and pillows were covered with clotted blood. There was a circle, about one inch around the wound, powder-marked. A probe passed into the wound, downwards and to the right, about three inches, traversing the anterior lobe of the right hemisphere without encountering the bullet. A number of loose pieces of bone were felt by the probe as it was carried through the aperture in the skull.

The pupils were normal in appearance, and responded to light; no deviation in size; tongue readily protruded in any direction; special senses of audition, vision, gustation, olfaction and touch unimpaired; patient perfectly conscious and free from paralysis; pulse 84, moderately full; respirations 18; stated that just after he pulled the trigger he felt a sensation of numbness all over—

this lasted a few minutes, when he felt a deep-seated pain in both ears; blood escaped freely from the nose and mouth, and he vomited considerable blood. Water dressings were applied, and absolute rest and quiet enjoined. Gave potassium bromide, .50 grams every three hours.

8 P. M. Dr. A. Reeves Jackson saw him with me, and probed carefully for the ball, but was unable to detect it. It was decided, in the absence of any serious symptoms, to make no further search, but await developments.

October 2d, 9 A. M. Pulse 76, respiration 20. Rested well during the night, sleeping fifteen or twenty minutes at a time; pain in the ears much less; vomited once or twice; no bleeding from nose or throat; slight bloody discharge from wound.

12 M. Pulse 76. Diet to consist of milk, beef tea, oat-meal porridge, and gruel.

6. P. M. Pulse 72. Passed urine freely, natural in amount.

10 P. M. Pulse 70. Sleeping quietly, not a bad symptom.

October 3d, 9 A.M. Pulse 62; respiration 20; tongue clean; no fever; face and neck hyperæsthetic; slight shooting pains through the head, and soreness at the posterior margin of vertex; sero-sanguineous discharge from wound; picked out a small detached piece of bone.

2:30 P. M. Pulse 60. Slight œdema and ecchymosis of left eye-lid; circular slough three-fourths of an inch in diameter forming around wound. Ordered (℥v) 20 gr. of Rochelle salts to move bowels.

7 P. M. Pulse 60, respiration 22. Dr. Jackson again visited the patient with me, and we deemed it best not to probe the wound, as there were no symptoms to indicate cerebral disturbance.

October 4th, 9 A. M. Pulse 60, respiration normal. Feels bright and cheerful; has a better appetite.

7 P. M. Pulse 64. Slight pain in head, back of left eye and towards the ear, for the past hour; attendant had allowed him to walk across the room, and get up to evacuate the bowels, contrary to directions.

9 P. M. Pain in the head has been steadily increasing in severity, is jumping or shooting in character, and referred to the

temples and back of eyes; patient very restless and uneasy, crying out with pain; intense thirst; skin hot. Pulse 68. Increased dose of bromide to (℈i) 1.20 grams, and added (gtt. i) .05 c. c. tr. aconiti rad. every three hours.

11:30 P. M. Pulse 80. Gave medicine every two hours.

October 5th, 2:30 A. M. Pulse 60, full and regular; feels better; dressed wound and removed fragment of bone; some pulpified brain-matter escaped; no odor to discharges, as dressings have been carefully carbolized.

11 A. M. Was seen by Dr. Jackson; symptoms more favorable; procured rubber ice bag for his head to rest on; advised chloral hydrate to allay pain and procure sleep, (15 grs.) one gram as needed.

4 P. M. Pulse 62.

10 P. M. Pulse 60. Slept forty-five minutes after taking the chloral hydrate.

October 6th, 9 A. M. Pulse 64. Slept about five hours during the night; wound looks well.

2:30 P. M. Pulse 64. Both eyelids ecchymotic.

9 P. M. Pulse 84. Is drowsy and stupid; does not answer promptly when spoken to; pupils slightly contracted—respond to light; tongue heavily furred; eyelids agglutinated by mucus; has a feeling of soreness all over the head; no acute pain. As four grams (℥i) of chloral had been taken during the afternoon, the drug was now discontinued.

October 7th, 9 A. M. Pulse 86. Had a comfortable night; removed two small detached pieces of bone from the wound.

2 P. M. Pulse 88, full and strong.

7 P. M. Pulse 86. Gave (gtt. i) .05 c. c. tr. aconiti rad. every hour.

October 8th, 8 A. M. Pulse 76. Was rather restless during the night; is perfectly conscious and hungry, taking milk, beef tea and oat-meal gruel freely.

2 P. M. Pulse 74. Resting quietly.

11:30 P. M. Pulse 72. Resting quietly; talks intelligently when addressed; expresses himself as feeling better; urinates regularly and easily, calling for a vessel when needed.

October 9th, 8:30 A. M. Pulse 74. Is bright and cheerful; feels well.

12 M. Had slight difficulty in swallowing; cervical muscles rigid; cannot turn his head from side to side.

9 P. M. Pulse 74. Muscles of deglutition.paralyzed; lies on left side, face drawn to the left.

October 10th, 7 A. M. Pulse 130, respiration 54. Left hemiplegia; case hopeless.

9 A. M. Passed urine involuntarily.

3 P. M. Pulse 140. Thready, muscular twitching.

6 P. M. Pulse 136, respiration 50. Had an epileptiform convulsion.

8 P. M. Has had three more convulsions; right eye turned in; left not affected; left bronchial tubes filled with mucus; used catheter, removing 700 c. c. (22 oz.) of ammoniacal urine.

October 11th, 7 A. M. Patient died, having had several convulsions during the night. Autopsy two hours later, in the presence of Drs. A. R. Jackson, J. C. Moore and nurses Russ and Brady.

*Post-mortem Appearance.*—The autopsy was made on Saturday morning, October 11, 1879, at 8:50 o'clock.

Body slightly emaciated; no rigor mortis.

An external pistol-ball wound in forehead about an inch and a half above the root of the nose, and slightly to the right of the median line.

The scalp was then incised from ear to ear across the vertex, and the flap drawn forward over the face. Upon the inner side of the scalp an ecchymosis of four inches in diameter existed around the wound.

The opening in the skull caused by the ball was of slightly crescentic shape, about three-quarters of an inch wide, by half an inch from above downward. No fracture lines were apparent upon the outer table extending from the opening. A small chip of lead was found attached to the roughened bone at the site of the wound. Upon removing the skull-cap, the right frontal sinus was found involved. Its walls were somewhat shattered by the passage of the ball, and the sinus itself contained a little bloody matter upon its membrane, and some small pieces of shat-

tered bone. The blood which had issued from the patient's nose and mouth in the early history of the case had doubtless found its way through this sinus to the nasal cavity and pharynx.

The vitreous table, from its anatomical construction and its situation, suffered most. The brittleness of the bone-tissue, and the nearly spent force of the ball, contributed in causing the internal opening to be larger than the external. Most of the pieces of bone which had been removed through the wound belonged to this table, and now were found two plates of the vitreous layer, each about a half-inch in diameter, adherent by lymph to the dura mater.

The dura mater presented no specially abnormal appearance, save the adherent scales of bone alluded to, and the opening caused by the ball, around which there was a limited inflammatory condition, and softened and disorganized brain substance was issuing from the orifice. Upon removing the dura mater of the right cerebrum, a small quantity of bloody serum, mixed with pus, was found beneath, and patches of pus were found over the pia mater, chiefly along the course of the vessels—the vessels themselves being slightly congested.

The left cerebrum was not affected.

In making sections of the brain substance, the same congested condition of the vessels was apparent. The right ventricle contained a considerable quantity of healthy fluid.

The ball, circular and flattened, was found lodged within the anterior lobe of the right cerebrum, about three-quarters of an inch deep on a horizontal line, and slightly to the right of the longitudinal fissure.

Evidently the cause of death was traumatic inflammation of the brain.

This case is reported not that it presents any strikingly new features of diagnosis or treatment, but as a contribution to the pathology of brain lesions. This case clearly shows that a comparatively large foreign body may be imbedded in the brain substance for ten days without giving rise to any symptoms of particular gravity, such as impairment of the special senses or paralysis. It also favors Ferrier's view of cerebral localization, as here we had extensive destruction of the middle convolutions

of the right frontal lobe, not followed by paralysis of motion or sensation, the functions of these convolutions being concerned in the manifestation of intellectual acts. Later, as a result of inflammation and consequent extension of the lesion to the basis of these convolutions, to the area presiding over motion, we had muscular rigidity of the opposite half of body, followed by motor paralysis; also oculo-motor paralysis, with turning of the head to the opposite side.

D. A. K. Steele, M.D.

Chicago.

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## Article VIII.

*Traumatic Tetanus.—Recovery.*

The case which I herewith report, is, I think, a typical case of tetanus traumaticus. If a subdivision were to be made, it might be classed under opisthotonos. The symptoms and history which will at once be given, will show that we had general tetanus, with opisthotonos, at times a special and marked symptom of the disease.

William J., male, aged 23, single, of previous good health. On the 27th of September last, had the ball of the thumb of the left hand wounded by a circular saw in motion. The wound upon its surface did not exceed one-half inch in diameter, but was irregular and torn, penetrating to the phalanx, the bone not being injured. The wound was immediately dressed by a surgeon whose name was unknown to the patient. On the evening of the same day the young man called on me complaining of severe pain in the thumb. I removed the dressing and a compound resembling pitch or tar which had been used. After cleansing the wound adhesive straps were applied and the man returned to his work, suffered little inconvenience, and in two or three days the wound was re-dressed in the same manner.

On the 3d day of October, six days after the injury, the patient returned to my office, and in a muffled voice said, "there is something the matter of my jaws, I cannot open them." His face was somewhat swollen, the swelling extending to the neck under the angle of the jaw. I scarcely suspected trismus but

was at first disposed to attribute the trouble to parotitis. On the following day, October 4th, I was sent for and found the patient at his home with positive symptoms of tetanus. He was lying stretched out on his back with the muscles of the trunk and extremities rigid. During the night the tetanic spasms had commenced, and at this time they recurred at intervals of about thirty minutes. Nearly the whole muscular system was involved when the paroxysms were the most severe.

The jaws in the first stage of the disease became fixed, with an opening between the incisors of one-eighth of an inch, which was fortunate. The muscles having the greatest rigidity from first to last were the masticatory, those of the larynx, the sterno-cleido mastoid, and other muscles of the neck, those of the chest and the flexors of the upper and lower extremities. The muscles having the most severe tension in the spasmodic contractions were the sterno-cleido mastoid, those of the anterior thoracic region, and of the back, and particularly the flexors of the lower extremities. The spasms of the serrati and other respiratory muscles were clonic, and respiration not seriously disturbed. The flexion of the spinal column was always well marked, when the contractions took place as in opisthotonos. The muscles of the face were not greatly distorted, and the act of swallowing never desperate though always difficult. Photophobia existed throughout; bright light would increase the frequency and severity of the spasms. Sudden and startling sounds would cause the same disturbance. From the second to the seventh day the paroxysms were very frequent, at times without complete intermission. At the end of this time they gradually became less frequent. The pulse never exceeded 110 per minute and generally not above 100. The external appearance of the body was normal in color except the face which was quite red. There was little or no increase of temperature. Bowels constipated and urine scanty.

At the end of the first week the mind was wandering and the the conceptions confused, but entire unconsciousness never. For ten days the patient passed sleepless nights and days, almost no sleep, not exceeding half an hour at any one time. In about twenty-eight days from the commencement of the tetanus the

spasms entirely disappeared; the trismus also, leaving the muscles stiffened, and their action more or less imperfect.

The treatment was as follows: October 4th, which was the following day after the appearance of tetanus, we prescribed extract calabar bean in (half grain) 0.33 doses, every two hours; given in a solution of alcohol and water. At intervals between these doses we gave (fifteen grains) 1.00 each of chloral hydrate and potassa brom., in glycerine and water, every two hours. These medicines were given for twenty-four hours, and the pupils closely watched, but no perceptible contraction took place. The spasmodic contractions were somewhat lessened, still they were violent. A blister (emp. canthar), was applied to the back of the neck, and counter irritation along the spine.

October 5th, administered by the stomach as before, extract calabar bean (half grain) 0.33 doses every three hours, and sulph. morphia, grain (one-fourth) 0.16; potassa brom., (grains xx) 1.33; and chlo. hydrate, (grains xv) 1.00, every one, two and three hours, as the violence of the disease demanded, and we were able to control the violence of the spasms to a great degree, lessening their force and frequency. The pupils were now contracted. The opium alone would have caused this. At times the opiate was given in doses so large and frequent as to cause contraction of the pupils to a very minute size.

October 6th and 7th, the calabar bean in less frequent doses was continued, and the sulph. morphia and potassa brom., dropping the chloral. During this period, when the swallowing was difficult, or when it was desirable to produce still greater effects with the opiate, gave frequent hypodermic injections of sulphate of morphia; from (one-fourth to one-half grain) .16 to .33 at each injection.

October 8th, Dr. Norman Bridge and Dr. Hanson visited my patient. Dr. Bridge suggested that we try calabar bean without opium, and closely observe the pupils. This was tried for about twenty-four hours. The contraction of the pupils was less than when opium was administered, and that which we did have may have been caused by previous doses of this narcotic. I need not go further in detailing the management of this case. The treatment was substantially the same to the end of the spasmodic contraction. It was pushed vigorously when the case was desperate,

and lessened when the acute stage had passed. Flaxseed poultices were constantly applied to the wound, and it was frequently bathed in warm water. The bowels were moved by enema and potassæ acetas given as a diuretic. A liniment containing one part of croton oil to seven parts of castor oil, was applied externally in the after-treatment to remove stiffness of the limbs, and was applied along the spinal column. The diet was beef tea and cream, and these were taken in large quantities through a straw.

The secret in the management of tetanus, if there be any, is to control the spasms and support the patient. The former requires close attention, and opium, I think, is the agent. Calabar bean may have a curative power by its action on the great nervous centers, but thus far its value is not definitely determined; and while it should be tried in cases where we wish to control these most serious disturbances of the nervous system, still in tetanus, I think our chief dependence is in the opium and bromide of potassa and the liberal support of the patient, with a nutritious diet.

HENRY VAN BUREN, M.D.

CHICAGO.

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## ARTICLE IX.

*The Treatment of Diphtheria.*

I beg to call the attention of my medical brethren to a mode of treatment of diphtheria which has given me, so far, even in very serious cases, extraordinarily good results, and which is very simple in its application.

My main remedy in the treatment of this disease has been for some time past the inhalation of carbolic acid, diluted, through a sponge. The sponge is saturated with a solution of carb. acid (the strength ranging from 1 part in 200 to 1 part in 100 of water), then placed in a wire holder, formed so as to fit over mouth and nose. This inhaling apparatus is fastened to the patient's mouth and nostrils so that respiration has to take place through the carbolated sponge. I order these inhalations to be repeated every two hours, and each inhalation to extend through about half an hour.

Within twenty-four hours after the beginning of these inhala-

tions the membranes become loose, and are gradually either swallowed or expectorated, and they do not re-appear with the same severity. But if similar formations do take place, they appear thinner and lose that characteristic coloring, growing gradually lighter and more transparent, until they disappear altogether, which is generally within three days, and with this the mucous membrane assumes its normal condition.

As the pain in the throat is ameliorated with every inhalation, the little patients notice this so markedly that every time they experience any pain, they request the application of the carbol. sponge.

In the cases of larger children, more gargling is possible. I order the throat to be gargled with warm chamomile (German) tea, in order to assist in the expectoration of the loose membranes, which procedure, of course, is inadmissible with smaller children.

After every application the sponge ought to be well washed in hot water, and if there be several patients in the same family, each one ought to have its own apparatus, or at least its own sponge. To prevent the carbol. acid sol. from affecting the lips, it is well to oil the lips previous to applying the inhaling apparatus.

The above method of inhalation is very simple and easily applied to children of any age. A few kind words generally suffice to induce them to take to the operation of inhaling with good nature.

Besides the inhalation I use quinine, and in order to keep the bowels open, the fl. ext. of rhamnus frangul. With larger children, I occasionally order gargling with a weak sol. of carb. acid.

As remarked above, this mode of treatment has always given me very satisfactory results. I believe, however, in order to fully establish the merits of this mode of treatment, a larger number of observations is necessary than can be made by a single practitioner. I therefore decided to publish my experience, so as to induce other physicians to test my method.

I wish yet to mention that the apparatus for inhaling, complete with sponge, is kept in stock by Mr. Arend, 179 East Madison street.

DR. RUDOLPH SEIFFERT.

# Domestic Correspondence.

## ARTICLE X.

### BOSTON LETTER.

*Messrs Editors:*—In my last letter I made the remark that the question of the admission of women to the Massachusetts Medical Society, was not yet settled. I likewise ventured the opinion that if the matter were voted upon in a general meeting, the result would be the contrary of that reached in the October session of the councillors of the society. That a definite settlement is still in the future is proven by the fact that the question has already been raised as to whether the councillors have the power to bring upon the society such a radical change in its conditions without consulting the society at large. The censors are State officers, but are appointed by the councillors, and consequently may receive instruction from the latter. Nevertheless, although I have not been able to find it, I am told that there now exists in the by-laws of the society, a law passed in 1870, to the effect, that no law now exists which permits an interference with the duties and decisions of the censors. This being the case, some of the censors of Suffolk county are of opinion that the recent decision of the councillors relative to women, is an alteration, or at least a new reading of the by-laws. If it be an alteration, the councillors overstep their powers, because a change in the by-laws is illegal without vote of the whole society. If it be a new reading, then the by-law of 1870, to which I have alluded, renders the decision of the councillors to admit women, non-effective so far as the censors are concerned. For this reason the censors of this county doubt the legality of the recent action of the council and, consequently, have drawn up a protest to that

effect. This protest has been communicated to the council and will be acted upon at their February meeting. While they thus remain in doubt as to their duty, the censors naturally are anxious for a proper solution of the question; for, believing they have no right to examine women, they cannot consistently do so. On the contrary, if they wrongly refuse to examine a qualified applicant, every man of them is liable to a fine of $400 for every such case.

Beside the law passed in 1870, and to which reference has been made, the censors of Suffolk county feel that the original by-law of the society in regard to the qualification of candidates has been misinterpreted. This by-law reads: "Every candidate for admission into the Massachusetts Medical Society must, by proper credentials and examination, satisfy the censors of said society that HE possesses the following qualifications for fellowship," etc. Now, the proper reading of this law depends upon the meaning given to the pronoun "*he*." This matter was made a subject of debate some years ago, at which time the opinion of Judge Hoar, in regard to the meaning of the pronoun was asked by the councillors. The Judge expressed the opinion that in its fullest sense "*he*" might mean *he* or *she* according to the judgment of the censors. This view clearly gives large margin, for, any body of censors may say: "If the spirit of the law means he or she, the letter means *he* and he only. So that in the minds of many members of the society the by-law is still considered debatable, and it will undoubtedly give rise to further discussion. If the censors of this county succeed in making a successful stand against the examination of women, these applicants would simply have to go to a county in which censors hold the opposite opinion and after a residence of a few months might apply for examination without hindrance. As you may see, the matter is in a muddle. At the coming meeting of the council the October vote may be reconsidered, and if change in the by-laws prove necessary, the whole question will be discussed in general meeting. We may then find that the majority will oppose the admission of women. That such will be the case is common opinion.

The authorities of Harvard University are making an effort to purchase the ground now occupied by the massive Cochituate

reservoir, now unused, directly behind the State House, in order to erect thereupon a new building for the Harvard Medical school. This has given rise to criticism which culminated in a paper recently read before the Suffolk Historical Society, by a gentleman whose happiest mood in public, seems to be one of criticism, and who, I am sorry to say, does not love the Harvard Medical school as fondly as he should. In his paper, this gentleman calmly expressed the opinion that to expend $250,000 upon a new medical school building when the present one is good enough, would be simply nonsense; that the funds would be far better used in creating a new medical faculty, the present body of teachers being either effete reminiscences of other days, or the mere accidental appointees of a system of disgraceful wire-pulling. I need not say that less powder would have created an equally loud detonation. This paper was the expression of more minds than that of the writer, but, the reputation of the school is a reasonably good one, and as for wire-pulling, the less said touching a mere assertion the better. The teachers of the school are chosen for their ability. Those who know the truth and are able to be just, quietly smile and wonder whether it be possible that the critics find Harvard grapes too sour to be palatable. To offer one of them a professor's chair or a lectureship in the school which is the innocent object of their unmerited criticisms, would be an experiment whose result would pretty surely add new brightness to the jewel consistency and make doubly apparent the rarity of its virtues.

A most necessary and beneficial plan has just been brought into successful operation in Boston. I refer to a directory for nurses which has been opened at our Medical Library, and is under the immediate charge of the resident librarian, Dr. Brigham. The plan originated with Drs. F. C. Shattuck and C. P. Putnam, who, with three ladies of exerience, form the board of management. The system is simply this: At the library rooms is kept a record of the names, addresses, as well as present and future engagements of nurses who have graduated from training schools or who are recommended by physicians in good standing. Applications for nurses may be made at any hour of day or night, and the addresses of such nurses only as are known to be waiting

for an engagement is given to the applicant. He has then only to proceed to her place of abode and secure her. Postal cards bearing the address of the library are furnished at cost to nurses, who are expected to keep the directory informed of their engagements. Failing to do this a nurse loses her place on the list and must register anew.

Each nurse upon registration pays a fee of fifty cents and responds to the following questions, the answers to which are written against her name: "How long have you been nursing? From what school having a diploma, if any? Is there any branch of nursing which you prefer to others? Do you wish to devote yourself exclusively to it? Are you willing to take meals in the kitchen if desired by employers? How much do you charge per day? Per week? To what physicians can you refer?" The replies to these queries give a résumé, as it were, of the nurse in question.

By circular, physicians are requested to recommend nurses to the directory, and likewise to refer to it all persons desiring nurses whether male or female, as well as manipulators and those who administer massage. Those who apply for nurses pay a fee of one dollar during the day, and two dollars from 8 p. m. to 8 a. m.

To the physicians whose names are given by nurses as references, the committee address circulars asking their opinions as to the desirability, capability and other qualifications of the nurses in question. Criticisms of any nature are likewise requested.

I have given you this much detail in order that you may see how perfect the system is. You will easily appreciate the relief which this directory brings to physicians, few of whom in the past have escaped the trial of being forced to drive about for hours, in order to find a nurse of *any* quality, much more a good one. Now, a dispatch or message is sent, day or night, to the directory, a good nurse is at once recommended, and the system goes like a clock. The nurse whose address is given is *always* found ready and waiting at any hour. This is a very excellent feature of the plan, which as a whole, acts with equal benefit in favor of physicians, laity and nurses. The comfort to be derived from an opportunity to read the history and gain a knowledge of

the characteristics and antecedents of a nurse who is to work for a physician or serve a family, cannot be overestimated.

Moreover, the trustees of our city hospital have established a training school for nurses, and the school is conducted in such a careful, systematic and intelligent manner, that Boston will surely have an abundance of good nurses as well as a centralized means of obtaining them.

You have noticed the new form and dress of our *Medical and Surgical Journal.* Congratulations and compliments from all hands assure editors and publishers that the change is appreciated. The journal has developed rapidly within the past three years, owing to the liberality of the publishers and the active ability of Dr. G. C. Warren. The recent fire which destroyed the business house of the publishers, Messrs. Houghton, Osgood & Co., did not cause the suspension of the *Journal* even for one week.

We have our share of sickness. The summery-winterish weather has worked much harm in debilitating the health of the sensitive.

Boston, Jan. 13, 1880.

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## Article XI.

### Wickersheimer's Method of Preserving Anatomical Preparations and Whole Bodies.

Chicago, Jan. 20, 1880.

*Editors of the* Chicago Medical Journal and Examiner:

About a year ago I read in a German newspaper that Dr. Wickersheimer, prosector in the anatomical institute at the University of Berlin, had invented a new preserving fluid, by which it was possible to preserve any organic bodies (plants, animals and human bodies) so perfectly that they retained their original natural form, color and limpid texture. The inventor, at first, secured a patent for his invention, but in the interest of science he relinquished it; and everybody may employ Wickersheimer's method, which is thus described in the *Deutsche Reichsanzeiger:*

"The preserving fluid is prepared as follows: 100 grams of alum, 25 grams of cooking salt, 12 grams of saltpetre, 60 grams of potash and 10 grams of arsenious acid are dissolved in 3000 grams of boiling water. The solution is cooled and filtered. To every 10 liters of this neutral, colorless and oderless fluid there are added 4 liters of glycerine and one liter of methyl alcohol. For the dry preservation the preparations are immersed in the fluid from six to twelve days, according to their size, and then dried in the air. Organs, like the lungs and intestines, are filled with the fluid before immersion, and blown up before drying. Small animals and portions of bodies, which are to be preserved in their natural colors, are simply kept immersed in the fluid. For embalming, the body is injected and laid in the fluid for several days; it is then taken out, rubbed off and dried, and wrapped in linen or oil-cloth saturated with the fluid, and encased in air-tight receptacles. If bodies are to be temporarily embalmed for scientific purposes the injection of 1½ liters (for children) to 5 liters (for adults) is sufficient. Even after years, the cut surface of the muscles shows the appearance of those of a fresh corpse. Bodies treated in this way have not the least odor."

As this invention seems to be of the utmost importance for anatomy and consequently will be of great interest to the medical profession, you may perhaps deem this brief note worthy of publication. Respectfully, F. C. Hotz, M.D.

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## Article XII.

### Pumpkin Seed for Tape-Worm.

*Messrs. Editors:*—Seeing in my January number of your Journal and Examiner, an article entitled "My Struggle with a Tape-worm," I want, through your columns, to offer Dr. Pratt my sympathy and indorse his final method. I have been in the same boat, only *a little more so.* In June last, a lady called on me with a link of tænia solium, which she said her little boy (eight years old) had passed. She said he had been passing them for over a month before she had found it out.

Now what was strange to me in this case, was the fact, that links of the worm would come away while the child was at his play or at school. In fact I was at the house once, a few days after the first treatment I gave, when the boy picked a link from the back of his neck, saying "there's another of those worms."

This, it seems, was an unfrequent occurrence. The links would sometimes appear at the neck, again he would feel them on his belly and pick them off, and scarcely a night passed that he did not find joints in his drawers or stockings.

I (like Dr. Pratt) used fld. ext. male fern as largely as I dared (after fasting), and gave castor oil as is customary. No especial results. Then used capsules of oil of male fern with kamala. Again no result. Then consulted a neighboring physician, and gave oil of male fern itself. I obtained it in Chicago of a druggist, who assured me it was of prime quality. For the purgative I gave a mixture as follows:

| | | | |
|---|---|---|---|
| ℞ Ol. terebinth | (gtt. xx) | 1 | |
| Ol. tiglii | (gtt. ij) | | 10 |
| Ol. ricini | (f℥ss) | 16 | |
| Muc. acacia | (f℥ss) | 16 | |

Mix.

Now, I was sure of the offender. The result was half a dozen copious stools with some griping and tenesmus toward the last, but *no worm.* Not even as many links as would pass in ordinary stools. About this time the mother was advised by an "old lady" to give pumpkin seeds. She asked me about using them, but I discouraged the idea, saying in a few days I would give another preparation which I was sure would bring the worm. But in the interval they tried the pumpkin seeds, and the boy came running into my office one day, breathless and excited, saying, "Oh, doctor, we've got the worm," "Come and see it!"

I found he had passed a *complete* worm about twenty feet long. Imagine my chagrin when "Young America," in an exulting way said, "Oh, doctor, grandma's pumpkin seed beat all your medicines." I had to confess it did. But soon the boy again began to pass joints of another worm, which were broader than any passed before. I advised a repetition of the pumpkin seed, and

the result was a worm about forty feet long. Since then (last September), the boy has been in the best of health. I kept him for two months on sulph. of iron (j gr.) .05 doses morning and night), and tr. colomb. and gentian co. before meals.

H. J. Thomas, M.D.

Greenwood, Wis., Jan. 16, 1880.

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## Article XIII.

### A Contribution to the Physiology of the Plastic Art.

*Messrs. Editors:*—It is plainly the duty of each, the busy practitioner and the still busier student, not to wait for time and opportunity to work out long and difficult scientific problems, but, being constantly in the presence of important facts, to contribute anything, however apparently trivial, coming within the scope of observation and experience, to the general store of medical knowledge. The following is not unimportant in a purely medical point of view and it is certainly a medical novelty of considerable physiological significance.

My office is directly opposite the unpretentious and busy studio of the eminent sculptor, Mr. Leonard W. Volk. In the intervals of practice it has been my privilege, and I have improved the occasions, to watch the process of modelling in clay, a process which is familiar to every school-boy in Rome, but rarely witnessed by the citizen of Chicago, and scarcely less rarely in other parts of America. The sculptor has for more than a year, been engaged upon five colossal statues; the first being that of ex-Senator Douglas and the other four being symbolical figures representing "Illinois," "History," "Justice," and "Eloquence," which are to surround the base of the monument. What struck me forcibly and led me to write this brief communication, was the number and variety of necessary manipulations, the patting, coaxing, spreading, the rubbing out and filling up and sticking on of the plastic clay, before the beautiful statue was ready to be immortalized in bronze. These manipulations and movements were so frequent and numerous that I was curious to follow and even to count them. I did this with the

following striking results: Mr. Volk is actively at work in his studio every day from six to twelve hours. He naturally works more hours during the long days of summer. He works incessantly at least eight hours every day. This is a fair average. It took him one hundred and twenty days to create the statue of Douglas and he occupied ninety days each in creating the other four. Multiplying the number of days by eight, the number of hours he works each day, and we get four thousand, eight hundred and forty hours, which, reduced to minutes, yields two hundred and thirty thousand and four hundred. The number of strokes was constantly from one hundred and twenty to one hundred and sixty a minute. We will use the minimum figure to allow for rest and interruptions. Multiplying by this we get the following, viz., *twenty-seven million, six hundred and forty-eight thousand strokes!* Now, most of these manipulations are performed by the index-finger and thumb of the right hand, and when modelling-sticks are used there is still no rest for these two members. Mr. Volk fortunately has become ambi-dextrous since he received an injury to the right thumb and thus he can throw a part of the labor on the thumb and finger of the left hand. One would naturally suppose that the muscles so incessantly engaged in these delicate manipulations would become the subject of neuroses like the kinesiopareses, paralyses and cramps of writers, pianists, and violinists, but notwithstanding the artist, unlike them, works in cold and wet material, he assures me that he has never suffered from any inconvenience beyond a myalgia of the muscles which are exercised, fatigued and chilled, and a soreness due to the wearing down close of the finger nails, especially when the clay is gritty. One would naturally expect more marked results from *thirty millions of movements in the course of a single year mainly by one finger and one thumb!* In the calculation I have made above I have not taken into account at all the work required to reproduce the clay model in plaster, a part of the art of sculpture which only American sculptors have to do themselves. It is a purely mechanical operation, of course, but it is very laborious, and is always done by common skilled artizans in Italy.

Dr. James I. Tucker.
Chicago.

# Reviews and Book Notices.

ARTICLE XIV.—CLINICAL MEDICINE; A SYSTEMATIC TREATISE ON THE DIAGNOSIS AND TREATMENT OF DISEASES. Designed for the use of students and practitioners of medicine. By Austin Flint, M.D., Prof. of the Principles and Practice of Medicine, and of Clinical Medicine in the Bellevue Hospital Medical College, etc. Philadelphia: Henry C. Lea. 1879.

This is a new work from one of the best known and most eminent writers on practical medicine in this country. It is a full-sized octavo volume of nearly 800 pages, published in the usual good style of the well-known medical book publishing house of Henry C. Lea. As stated by the author in the preface, the work is devoted almost exclusively to the diagnosis and treatment of diseases, including very little concerning their etiology, special pathology, or morbid anatomy. It seems to have been the purpose of the author to place in the hands of the student and practitioner a work that would aid him in the simple matter of diagnosis and treatment, which he impliedly regards as embracing the special field of clinical medicine. Notwithstanding our high estimate of the author and the value of his many contributions to medical literature, we fail to see the propriety of thus restricting *clinical medicine* to the two topics just named. True, it is the first duty of the practitioner at the bedside of his patient to make a diagnosis, *i. e.*, to determine the name of the disease, its location, extent, and stage of advancement, but does this alone qualify him to prescribe the proper remedies? Is it not just as necessary that he study and see clearly the nature of the morbid action set up and its tendencies; in other words, the special pathology of the case? And how can he apprehend this fully, without revert-

ing to the causes and circumstances under which the disease has been developed. The relations between diagnosis, special pathology, and the indications for treatment, are so intimate that they cannot be separated and maintain a claim to rational practice. The clinical teacher who should occupy the attention of his pupils altogether with the methods of diagnosis and the various remedial agents found valuable in the management of diseases, might make them skillful diagnosticians, but very deficient practitioners. Our author fully acknowledges this, when he says in the preface to the present volume: "The work is intended to accompany, and not, in any measure, to supercede, more comprehensive treatises embracing the morbid anatomy, the causation and the pathology of diseases. It is needless to say that no one who neglects these fields of study can become an intelligent or competent physician; etc." And yet hundreds of students and practitioners will take this new work, restricted as it is to diagnosis and treatment, both as a text-book and a book of reference, and *not* supplement it with more comprehensive works until their modes of thought have become narrowed and partial, and their practice routine and empirical.

We have already too many aids and helps, hand-books and abridgements, summaries and essentials, all tending to encourage superficiality in study, imperfect mental discipline, and still more imperfect professional attainments. We regret that so eminent an author and teacher as Prof. Flint, should have lent any encouragement to this tendency of the times, by giving us a volume in which the important topics of diagnosis and treatment, are so far separated from their intimate and natural relations to pathology and etiology. Having expressed thus freely our disapproval of the general scope of the work so far as it relates to the separation of diagnosis and treatment from the other equally important items of study at the bedside, we turn with pleasure to a brief examination of the contents of the work.

It opens with an introductory chapter of over forty pages containing brief, but excellent instructions concerning the modes of examining patients; the keeping of clinical records and reports; methods of diagnosis and the relations of symptomatology thereto; the objects of treatment both hygienic and medical; the sources

of error in therapeutics; and the professional conduct of physicians. Passing this introductory chapter, the author enters directly upon the consideration of the diagnosis and treatment of individual diseases. He follows the general custom of dividing all diseases into two classes, general and local.

He treats of the latter class first, and groups them in accordance with the physiological systems of organs, "namely, the respiratory, circulatory, digestive, urinary, and nervous." A section is devoted to each of these six groups, prefaced by some preliminary observations concerning the means used as aids in observing and properly appreciating the diagnostic symptoms presented at the bedside. These six chapters occupy over six hundred pages, or six-sevenths of the whole volume, leaving only about one hundred pages for the consideration of general diseases. In this latter class, however, the author includes only the idiopathic fevers with diphtheria, erysipelas, gout, rheumatism and epidemic cholera; while chlorosis, pernicious anæmia, Addison's disease, Hodgkin's disease, leucocythemia, general dropsy, pyæmia, septicæmia, scorbutus and scrofula, are classed with the local diseases in the chapter on diseases of the circulatory system. The propriety of such a grouping appears to us very questionable, though of little practical importance. Throughout the volume, in whatever relates to diagnosis and the means and methods to be employed, the author's directions are clear, full and eminently judicious.

We cannot make the same unqualified remark in regard to that part of the work devoted to the treatment of diseases. While the enumeration of remedies is sufficiently full in the great majority of cases, the careful reader, and especially the inexperienced practitioner, anxious for exact knowledge, will notice in reference to many diseases a failure to designate the adjustment of the remedies to the several stages in the progress of diseases under treatment. Take the following as an example, from pages 773–4, in reference to the treatment of acute gout.

"The objects of treatment are to relieve the patient as speedily as possible, and shorten the duration of the attack. Much can be done therapeutically to effect these objects.

"The severe pain should be relieved by some one of the preparations of opium. The promptness of action when administered

hypodermically renders the method preferable if, as is usual, the pain be extremely intense.

"If administered by the mouth, the *Dover's* and *Tully's* powders are eligible preparations, in consequence of their diaphoretic effect.

"If the stomach be irritable, laudanum may be given per enema. The doses are to be graduated by the pain, and should be sufficient to afford relief without, of course, incuring any risk of narcosis. A watery extract or infusion of opium may be applied to the effected joint. For shortening the duration of the attack, colchicum is emphatically the remedy. It has no succedaneum in this disease. It should be given as soon as practicable after the paroxysm, that is, at the beginning of the remission or intermission. Half a drachm of the tincture or wine of the colchicum seeds may be given at a dose, and repeated after intervals of three hours, until a moderate cathartic effect is produced. The efficacy of the remedy is not derived from its cathartic effect, but the latter is evidence that it has been given to a sufficient extent."

Here we are told, substantially, to use some one of the preparations of opium to relieve the intense pain of the paroxyism, that we must use it in sufficient doses to accomplish the result, and must be careful not to *narcotize* the patient.

But not one word is said as to what doses of any one of the opiate preparations, an adult patient in the midst of a paroxysm of acute gout, generally requires, or how often it may be safely repeated. And yet that is the very item of information which the student and inexperienced practitioner needs, when he comes to the bedside of his suffering patient. Again, if colchicum is emphatically the remedy for cutting short the attack, why delay its use until the paroxysm subsides? Why not give it in efficient doses conjointly with the opiates; more especially as its efficacy does not depend on its cathartic action?

In our own experience, we have found nothing that would more speedily allay the intense pain of the paroxysm, than an equal mixture of acetated tincture of opium and wine of colchicum seeds, given in doses of from thirty to sixty minims every one or

two hours until relief began to be felt, when the interval between the doses is increased.

Again, on page 770, the author writing of the treatment of chronic rheumatism, or the rheumatic diathesis, says:

"While it must be admitted that treatment very often fails, the measures proving in some instances useful, if not successful, are those which have for their object the removal of a diathetic condition. Various medicinal remedies are serviceable, each in a certain number of cases, and, and with proper caution, they should be severally tried before coming to the conclusion that nothing is to be expected from drugs. The following are the more important of these remedies: guaiacum, mercury in the form of bichloride or the iodide, the iodide of potassium or ammonium, colchicum in small doses, the hydrochlorate of ammonia, arsenic and sulphur."

Here are eight or nine efficient drugs named, differing widely from each other in composition, and mode of action upon the human system, and it is intimated that each one of them is capable of benefitting "a certain number of cases" of chronic rheumatism; but no attempt is made to point out the particular kind of cases that each remedy is most likely to benefit. On the contrary, the student is rather plainly encouraged to begin the list with each unfortunate patient, and proceed blindly from drug to drug until the desired relief is obtained or the list has been completed. It is true, the author says this should be done "with proper caution."

But what constitutes proper caution in the use of these remedies in the treatment of chronic rheumatism? Does it consist in stopping when the *gums are touched* by the mercurials; the bowels purged by the colchicum; or the appearance of initial symptoms of general dropsy from the arsenic? These are certainly questions of interest to the practitioner, and such as a full treatise devoted exclusively to diagnosis and treatment should answer. We have quoted the above simply as specimens of what may be found in almost all parts of the volume before us. They certainly very much lessen the value of the work, especially as a text-book for students. The same defects are found more or less, however, in most of the more recent works on practical medicine.

It is not uncommon to find forty or fifty pages devoted to a consideration of the symptoms, causes, pathology, morbid anatomy, and diagnosis of a disease, while the treatment is summarily disposed in one or two pages.

This is not as it should be. The real end of all our study is to learn the art of prevention and cure of diseases.

And our success will always depend fully as much upon the accuracy with which we adjust our remedies to the stage of progress, and the special character of the morbid action in each case, as upon the kind of remedies we choose. N. S. D.

ARTICLE XIV.—THE PATHOLOGY AND TREATMENT OF VENEREAL DISEASES. By Freeman J. Bumstead, M.D., LL.D., late Professor of Venereal Diseases at the College of Physicians and Surgeons, New York, etc., etc. Fourth edition, revised, enlarged and in great part rewritten by the author and by Robert W. Taylor, A.M., M.D.. Professor of Skin Diseases in the University of Vermont, Attending Surgeon to Charity Hospital, etc., etc. With one hundred and thirty-eight woodcuts. 8vo. pp. 835. Philadelphia: Henry C. Lea. 1879.

The first edition of this familiar work, issued in 1861, commanded a success which was the fruit not only of its intrinsic excellence, but of its timeliness. It was presented to the profession of this country before the time of that remarkable awakening of interest in venereal studies, to which the book itself in large part contributed. At a date when the subject had been largely relegated to the great teachers of surgery in America, who for the most part, it may be said, viewed it from the standpoint of so-called unicism, this treatise, written in a remarkably lucid and pleasant style, attracted universal attention to the doctrines of the two men, who were then the rising and setting suns of French syphilography. The book thus attained a popularity among medical men, the like of which can scarcely be realized a second time, either by itself or its competitors, from the lack of the peculiar timeliness which has been already mentioned. In brief, the work became the oracle, in its special field, for many who read its pages with an interest which was only equalled by their delight. Nor was this true only of professional gentlemen

Venereal patients in the *clientèle* of the general practitioner, purchased and perused it, with an eagerness born of their necessities, and even quoted its precepts to those in whose charge they had sought relief. Beyond the borders of the United States, such was its popularity, that before the issue of a second edition it received the honor of Italian translation and publication.

The editions which followed, were revised and improved to a certain extent, sufficient at least to sustain the high reputation of the treatise; but the later, it must be confessed, were threatened with eclipse by the appearance of a new and excellent work, which was also from the pen of American authors of experience and well-known ability, and which rapidly commanded the position to which it was entitled. Certainly it was high time for a more thorough and complete revision of this volume, which, more fully than any other, has become identified, on this continent at least, with the literature of venereal diseases. The prestige of a large and deserved success could not much longer withstand the eager competition of a host of American authors and observers of unquestionable merit.

The task has been accomplished, and that right worthily. We find that we have here practically a new book, and that the statement of the title-page as to the fact that it has been largely rewritten, is a sufficiently modest announcement of the important changes in the text. Dr. Taylor, who was selected to aid in the work of revision, is already favorably known to the profession at large as an author of numerous monographs on dermatological and venereal subjects, not the least of which is his valuable essay on "Syphilitic Lesions of the Osseous System in Infants and Young Children," New York, 1875; a work which has gained for the writer an international reputation in this special department of a special branch of medicine. It is not difficult to detect his careful handiwork in the transformation of the treatise.

How great this task has been, will best be determined by him who has made the attempt to examine, even in a cursory fashion, the literature of any other medical subject for a single year. From January to November, 1879, for example, no fewer than 394 papers, pamphlets, books, articles in medical periodicals,

monographs, etc., were printed under the designation of syphilis and gonorrhœa only, and to this large number should be added, for the current year, not only those to appear during the last two months, but an equally large, if not still greater number of titles in the department of skin diseases, general pathology, general surgery, and genito-urinary disorders. All these, appearing in the English, French, German, Italian, Spanish and Russian languages, furnish a truly formidable mass of material, which accumulates between the dates of the several editions of any given work, and much of which should pass under the eye of the writer of a systematic treatise on venereal diseases. For the day has passed, rarely to return, when originality of experience or expression can take the place of this laborious compilation, digestion and condensation of the labor of the best men. It has nearly come to this, that in the day which we see and in the departments of science we cultivate, the less original and the more catholic a book, the greater its chances of success and survival. To return to the volume before us, it is not too much to say that a still larger treatise could have been filled with what is to-day known about either nervous, hereditary or osseous syphilis, stricture, the diseases of the prostate gland due to gonorrhœa, or a dozen other topics which might be named.

We have made this explanation, chiefly because, after a thorough examination of the present edition, we can assert confidently that the enormous labor we have described, has been here most faithfully and conscientiously performed. They who know how to appreciate the difficulty of such a task, will be surprised, when they come to consult these pages for the literature of any important subject, to discover how far an abstract of the same has been incorporated with the text.

A few illustrative examples will suffice to direct attention to this valuable quality of the work accomplished. Hydrocele, for instance, is not a subject which has a direct connection with venereal disorders, and on turning to the latest edition of Mr. Curling's voluminous treatise on the testis,* we find 132 pages devoted to the thirteen varieties and complications of hydrocele there tabulated. But our authors have succeeded admirably in conveying

* London, 1878.

all essential information on this topic, in the closely-printed six pages which are by them allotted to the subject.

A comparison of the book before us with one of the latest published under a similar title in France, will serve to establish the fact of the relative excellence of the American treatise. The comparison is the more justifiable, as our American authors have not hesitated to make frequent references to the labors of M. Louis Jullien,* and even to borrow some of his plates.

On the question of the etiology of hereditary syphilis, which has of late elicited a great deal of discussion, and which has attracted the attention of eminent men, who have espoused every succeeding solution to the problems presented, the differences between the writers in comparison become conspicuous. Jullien, resting implicit faith upon the hitherto impregnable law, formulated by Colles in the year 1844, that a child affected with hereditary syphilis will not infect the breast of the mother who suckles it, hastens to set forth the following propositions as fully established: 1. Without infection of the mother, there can be no hereditary syphilis. 2. The father cannot transmit syphilis to his child without contamination of the mother.

But these propositions have been refuted, time and again, by clinical observations of the most scrupulous exactness, extending, as is requisite, over long periods of time, and conducted under the serveillance of scientific men of established skill and probity. The results are fixed facts, which are not to be either neglected or explained away. But there is a peculiarity in the mental constitution of French medical authors, which is an inextinguishable reverence for Gallican ideas and Gallican heroes. The doctrines which Jullien sustains are the untenable theories which Cullerier first asserted, which have since borne his great name, and which were shown to be false and dangerous even before the publication of the masterly monograph by Kassowitz, which, if it proved nothing else, showed that in the paths of brilliant and original investigation, the sceptre was departing from the French nation.

Upon the points in question, Bumstead and Taylor express opinions which are in accord with the views of the most judicious authors in this department. Syphilis, say they, is transmissible

* Traité Pratique des Maladies Vénériennes, Paris, 1879.

from the father to his offspring. Viewing the law of Colles in the only light which is warranted in the present state of our knowledge, they declare that the immunity of the mother of the infant who has inherited syphilis, is due to some occult and undiscernible change in her system. They refuse to declare that such immunity is equivalent to maternal syphilis, until that syphilis is pronounced and demonstrable. This is really not merely a curious problem for the theories of doctrinaires. It is a practical and every-day question of pressing importance. Every syphilitic patient has the right to know himself or herself to be such, and it is for the interest of each as well as for the interest of society at large that such knowledge should be had. What refinement of cruelty is greater than that which suspends a sword worse than that of Damocles, for the space of years (and there are cases where this period has extended to a quarter of a century), over the head of one who should enjoy the fullest assurance of safety!

Again, with regard to the *choc en retour* of Ricord, and the fanciful "syphilis by conception," more recently advocated by Diday, of Lyons, it seems well-nigh impossible for Jullien to divest his mind of an extraordinary sentiment of reverence for him whom the French are fond of calling the "Lyonnaise master." Jullien declares that Diday's method (of regarding the menstrual derangements of the wife of a syphilitic husband as so many abortions with syphilitic ova) is exceedingly ingenious, and one which supplies the key to a great many problems. He proceeds to express his admiration for the way in which Diday has expounded his theory. At the same time, the opinion is advanced that the theories in question are not such as to command absolute conviction; and a mild request for further proof is made, accompanied by an apology for taking such a liberty.

Now the fact is, that Diday's absurd paper on this subject has already been shown to contain errors and damaging omissions. It has not, so far as we are aware, received the indorsement of a single syphilographer of repute; and its quasi support by Jullien is, to us, an additional evidence of the prevailing French method of writing books in which everything that emanates from the pen of a French writer is regarded with at least respectful consideration, while the views of those who oppose the latter, provided the

authors are not of French nationality, are esteemed as those of "barbarians," in the Greek acceptation of that word.

Bumstead and Taylor have the courage to pronounce Diday's recent article as "valueless and defective," and formulate the conclusion to which they have arrived as follows. It is in accord with what seems to us the most judicious interpretation of established facts: "We conclude that, in hereditary syphilis, the disease is conveyed either by the sperm-cells or by the ovule, diseased at the time of conception, and that infection of the mother or of the child cannot take place through the utero-placental circulation."

Lastly, a further comparison of the two books serves to exhibit the care which has been bestowed upon typographical appearance by the Americans. They furnish a list of twelve errata, printed on the page which faces the opening sentence of the introduction; and the character of these is such as to require, in the main, a change of but one letter or the addition of an *umlaut*. The errors belong, in short, to that list which should be recognized as the "inevitable" in the prosecution of so great a task as the publication of a treatise of this size and scope. The proof-reading has evidently been of the most conscientious character, and has thus contributed in no small degree to the pleasure which the perusal of the work affords.

In Jullien's work, however, can be recognized that sublime indifference to the orthography of all languages other than the French, which observant men have come to regard as a distinctive feature of their scientific publications. We have enumerated no less than thirteen typographical errors in two successive pages of bibliography given in the "Maladies Vénériennes," and it is fair to infer from this that are more than one thousand in the entire 1120 pages. It should be added that these errors are not only those which occur in the rendition of foreign names; we note these also in the spelling of French words, and even in the titles of pages.

We have endeavored thus briefly to suggest some comparison between these two works, lately issued on the same subject, that the results might indicate more clearly than could the mere dictum of a reviewer what reason we have to congratulate our countrymen upon the truly valuable addition which they have made

to American literature. The careful estimate of the value of the volume, which we have made, justifies us in declaring that this is the best treatise on venereal diseases in the English language, and, we might add, if there is a better in any other tongue, we cannot name it; for, while it may be admitted that there are to be found elsewhere, on certain special subjects, fuller discussions of every phase of controverted themes, there are certainly no books in which the student or the general practitioner can find such an excellent résumé of the literature of any topic, and such practical suggestions regarding the treatment of the various complications of every venereal disease.

We note that the metric system has been so far adopted by our authors that in all printed prescriptions the dose is named both in terms of the old and new nomeclature, an arrangement which has been adopted by several German authors since the use of the metric system was in their country made imperative by law. The method of our authors is one which should satisfy the friends and enemies alike of the recommendations of the American Medical Association in the same connection. The prescriptions of our authors are, as a rule, too, metrically accurate, and not mere transpositions of terms. A few errors, in the accomplishment of this task, were only to be expected; and we note one on the 573d page, where a formula is given for the treatment of phtheiriasis pubis. The proportions are accurately given in terms of the metric system, but, by the old reading, the solution of the bichloride of mercury ordered will contain sixteen grains to the fluid ounce. This solution would, without any question, put an end to the lice, but we may be permitted to express the hope that the tyro who first consults the page for the purpose of being instructed as to what he shall employ, will prefer to be guided in his selection by the proportion given in the metric formula.

In the matter of mensuration of urethral instruments, our authors have also, in the present edition, given a deserved preference to the French scale; figured the Handerson gauge, which we esteem far more useful than any others sold (even to the exclusion of the lately-devised "adaptable metric gauge" of Dr. C. H. Thomas, of Philadelphia); and have, in our judgement,

done well in inclosing within quotation marks the name of the so-called "American scale," proposed by Drs. Van Buren and Keyes, in their otherwise admirable treatise. If these last-named gentlemen had been content with baptizing their scale with their own names, an immense deal of confusion would have been avoided. By attaching a national name to their scale of instruments they accomplished a result which we can well believe they did not anticipate. They might have been speedily forgiven for the boldness of their action in this matter, if it had resulted in giving us a truly American uniformity. As it is, we are still compelled to follow our authors in the adoption of that which "is known and used as a standard by so many surgeons in every civilized country."

In the matter, too, of the use of instruments for mensuration of the urethral chink, when it is distended, and for incision of strictures of large calibre, we congratulate our authors upon the judicious fairness with which they have handled the subject. They have not failed to give honor where honor was due, and, refusing, practically, to embody a section of a controversy in their pages, which would only serve to disfigure them, they have earned for themselves a merited commendation.

The style of the book, as re-written, is fully equal to that of the preceding editions, which was in parts a model of elegant English. It must be admitted, however, that a species of incongruity can be detected, in the indiscriminate use of the personal pronoun, which leaves the reader occasionally in doubt as to whether the senior or the junior author is responsible for the text, or whether they have both contributed to its lines. It would surely have been an improvement if the editorial "we" had been adopted throughout, as thus the unity of the book would have been more completely sustained.

It is sufficient to ask of our authors in medicine that they embody in their work, the fruit of the researches of the most trusted of their contemporaries and predecessors. It is too much to ask of them that they also point out to us the lines of probable advance in the wilderness of the knowable and yet unknown or but imperfectly known. We can, therefore, well afford to excuse the writers of the treatise before us, for their halt in the

face of a proposition to which it seems to us the scientific world must speedily give assent. It is the proposition which asserts the contagiousness, in different degrees, of all pus. Or, to place the doctrine in a clearer light, it is a proposition which asserts that the living product of the process of inflammation is possessed of an energy which is capable of originating a like process in all living matter, this capability being proportioned to the activity of the process by which it was itself engendered.

First announced by Von Roosbroeck, we believe, and substantiated by experiments by Pick, of Prague, in so far as it relates to the matter of the acne pustule, it is an explanation of much that is either doubtful or curious in pathology. It may be found to throw some light on the "contagious impetigo," of the late lamented Tilbury Fox, and, if finally well established, will splendidly illuminate many obscure points in the study of venereal diseases. If all pus is more or less contagious, we may be sure that the pus produced by the inflammatory process in venereal disorders, will enjoy its full share of such a power. We shall not then find it to be absolutely true, as stated by our authors (p. 398), that "pus of a sinple inflammatory bubo is like that of any common abscess, destitute of contagious properties, and therefore not inoculable." For it is precisely the pus of a common abscess which we shall one day find to possess the exact qualities which are here denied to it, unless all the sign-posts, which are now plainly pointing in that direction, be speedily removed.

But as we have said, it is altogether too much to require of our standard text-books that they be not only encyclopædias of wisdom, but oracles of prophecy as well.

The several plates in the work are all finely finished, and the reader will be pleased to find here many that are not only entirely new, but of great service in the explanation of the text. The publisher has not failed to execute his part of the labor of introducing this practically new work, in an exceedingly handsome dress. The volume is larger than its predecessors by 131 pages, but from a reduction in the size of the type, it is estimated that it contains about twice as much matter. The index to this edition, we find full and accurate. In the matter of the abbreviations of the titles of periodicals, the plan has been here followed,

which was first employed by Dr. Billings, of the library of the Surgeon-General's office.

We take pleasure in repeating that we believe this to be the best treatise on venereal diseases in the English language, and we congratulate the authors upon their brilliant addition to American medical literature.

The news of the death of Dr. Bumstead, which occurred on the 28th of November, 1879, and which attaches a melancholy interest to this latest work of his pen, reached us only after the completion of the preceding paragraphs. Having written in an effort to impartially consider the fruit of his labor, we have preferred to make no change in any sentence. Needless to say, however, that if we could have known the learned author was to survive for but so brief a time the exhausting labor which the preparation of his book enforced, we should have approached the task of reviewing it with greater diffidence and turned its pages with a gentler hand.

Others, without doubt, will pay the timely and tender tribute to that intellectual manhood, which is hereafter to adorn the roll of the honored dead of the profession of our country, and to those genial qualities of heart which have endeared their owner to his many personal friends. We can not but be grateful that his life was spared to add the finishing touches to this great work, in which all his largest activities were interested, and which will survive as a fitting monument to the brilliant success of his professional career. We would lay this as a flower on the tomb of the dead master, that in a field which others might esteem repulsive, he wrought that which has the fairness and purity of the spirit by which he was moved.

J. N. H., *in the American Journal of the Medical Sciences.*

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## Books and Pamphlets Received.

My Struggle with a Tape-worm. By G. B. Pratt, M.D., Elkhart, Ind., late Resident Physician of the King's County Hospital, Brooklyn.

Dental Hints for Country Medical Practitioners. By G. Newkirk, M.D., Wenona, Ill.

Valedictory Address to the Graduating Class of the Medical Department of the University of California. By W. F. McNutt, M.D., L.R.C.P., Ed., etc., etc., Professor of Principles and Practice of Medicine, Med. Dep. University of California.

A Manual of the Practice of Surgery. By W. Fairlie Clarke, M.A. and M.B. (Oxon), F.R.C.S., Assistant Surgeon to the Charing Cross Hospital. From the last London edition. Revised and edited, with additions, by an American Surgeon. New York: William Wood & Co. 1879.

On the Use of Water in the Treatment of Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., Physician to the Skin Dept., Demilt Dispensary, New York, etc., etc.

A Contribution to the Hæmatinic Properties of Dialyzed Iron. By Robert Amory, M.D., of Longwood, Mass.

Pay Hospitals and Paying Wards throughout the World. Facts in Support of a Re-arrangement of the English System of Medical Relief. By Henry C. Burdett, late General Supt. of the Queen's Hospital, Birmingham. London: J. & A. Churchill, New Burlington St., W. 1879.

Responsibility Restricted by Insane Delusion. By T. L. Wright, M.D., Bellefontaine, O.

A Clinical Inquiry into the Diagnostic Significance of Absent Patellar Tendon Reflex. By C. H. Hughes, M.D., late Superintendent and Physician to the Missouri State Lunatic Asylum, Fulton, etc., etc.

Saint Bartholomew's Hospital Reports. Edited by W. S. Church, M.D., and Alfred Willett, F.R.C.S. Vol. XV. London: Smith, Elder & Co., 15 Waterloo place; 1879.

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DR. J. ADAMS ALLEN, President of Rush Medical College, has been compelled, in consequence of the state of his health, to take a respite from the labor incidental to his practice as a physician and his duties as a college professor. He sailed for Europe January 17th, in the company of his wife, and intends to visit Egypt first, passing up as far as the Nile cataracts. He expects to return in the fall of this year, and has carried with him the best wishes of his many friends for the complete restoration of his failing health. Prior to his bidding good-bye to the members of his class at the college, he was presented by them with a costly and elegantly engraved gold watch, as a souvenir of their affectionate regard. When he proceeded to take the train at the station, he found there several hundreds of the college students who loudly cheered him as he set out upon his long journey.

# Editorial.

Annual Report of the National Board of Health, for 1879. Washington, D. C., January 1, 1880.

We have just received the *National Board of Health Bulletin*, with a supplement containing the regular annual report of the national health board, and we are sure the readers of the Journal and Examiner will be interested in knowing what the board has accomplished during the first year of its existence, and what it proposes to do in the future; hence we shall make copious extracts from the report. With rather questionable good taste, the board commences its report, not only with an account of its own organization, but also with copies of the cordial indorsements given to it by the American Public Health Association and the National Academy of Sciences. The past and future work of the board is then given as follows:

"II. The collecting of information with regard to the sanitary condition of some of the principal cities and towns in the United States. Work in this direction was organized at the first session of the board by the printing, with additions and corrections, of a series of schedules of questions for the sanitary survey of a city, the original schedules for this purpose having been prepared several years previously by a committee of the American Public Health Association. A number of these schedules have been returned to the board properly filled up, and others are in course of completion. It is believed that the result has already been good in indicating the lines of inquiry which should be pursued by municipal authorities in relation to sanitary matters, and that hereafter a large amount of valuable information will be collected by this means.

"III. The appointment of a commission to investigate yellow fever in the Island of Cuba. The commission, generally known as the Havana Yellow Fever Commission, consisting of Dr. S. E. Chaillé and Col. T. S. Hardie, C. E., of New Orleans; Dr. John Guiterás, of Philadelphia, and Surgeon George M. Sternberg, U. S. A., sailed for Havana on the 4th of July and returned on the 4th of October. The preliminary report of this commission has been printed as a supplement to the *National Board of Health Bulletin*, and a copy is herewith appended, marked B.

"From this report it appears that yellow fever must be considered as endemic in the Island of Cuba, and that for many years it has prevailed annually in the principal ports. The facts presented do not confirm the theory of the spontaneous origin of the yellow-fever poison on board ships, and make it improbable that the cleansing of the harbor of Havana and the constant renewal of its waters, however desirable, would prevent the infection of the shipping at this port. Attention is especially invited to that portion of the report which gives an account of the obstacles placed by the authorities of Cuba in the way of the execution of the law approved June 3, 1879, and to the action taken by the governor-general of Cuba in July, 1866, declaring foul all the ports of the United States, and decreeing that all vessels arriving from them at the ports of Cuba should be subjected to the most rigorous quarantine, in consequence of the report of cholera having appeared in Philadelphia. The recommendation of the report that an attempt should be made to establish an international sanitary code, and the reasons given therefor, also merit careful consideration. In this connection, however, it is to be remarked that, under the existing constitution of the United States, and the construction placed by judicial authorities as to the scope of the police powers of the several States, it may be impossible that the United States government should become a party to any international code of quarantine, properly so called, for the reason that it would be impossible to guarantee that, if such a code were agreed upon and a vessel coming from a foreign port had complied with all its requirements, such vessels could be admitted into any port of the United States, since it is within the power of any State, and of many municipalities, to impose a quarantine of delay, or even of

non-intercourse, upon any vessel arriving at their port or ports. It is for this reason that the board has attempted to secure at present only an international system of notification as to the sanitary condition of ports and vessels.

"IV. The sanitary committee of the board on sanitary legislation, consisting of Drs. H. I. Bowditch, S. M. Bemiss and Stephen Smith, has employed a competent legal authority of Boston to collect and collate the sanitary laws of the United States and of the several States, including not only the statutes, but the decisions of the several courts, on all questions involving the public health. A copy of this work is herewith appended, marked C.

"This compilation is of such immediate practical interest and utility to all who are interested in sanitary legislation, that it is recommended that authority be at once granted for having it printed as a separate volume.

"It needs but a brief examination of this record to show that the sanitary legislation of the great majority of the States is in a very unsatisfactory condition. Even those which have provided State boards of health have not done so on any uniform or well-considered plan; and very few of such State boards are so organized as to be able to meet the emergencies of an epidemic.

"It is hoped that the publication of this compilation of sanitary law will be one means of securing efficiency, and, to a certain extent, uniformity, in both State and municipal sanitary legislation throughout the country.

"V. At the request of the board, an investigation as to the best method of determining the amount and character of organic matter in the air has been undertaken by Prof. Ira Remsen, of the Johns Hopkins University of Baltimore. A copy of the preliminary report of Prof. Remsen on this subject is herewith submitted, marked D.

"VI. An investigation as to the effects of disinfectants, and especially of those used for disinfecting inclosed spaces, has been undertaken by Dr. W. S. Bigelow, of Boston, assisted by Dr. H. P. Bowditch, professor of physiology, and Dr. Wood, professor of chemistry, of Harvard University, the whole being under the

general direction and advice of Dr. C. F. Folsom, secretary State board of health of Massachusetts.

"VII. An investigation as to the composition and merits of the various patent disinfectants, which has been made at the request of the board, by Prof. C. F. Chandler, of Columbia College, president of the board of health of New York City.

"VIII. An investigation as to the prevalence of adulterations in food or drugs in the United States, under the direction of Dr. H. A. Johnson, chairman of the standing committee on this subject. In this connection a paper upon the deteriorations and adulterations of food has been prepared for the board by Dr. R. M. Kedzie, president of the State board of health of Michigan, and a paper on the adulterations of drugs, by Prof. L. Diehl, of Louisville, Ky. Copies of these reports are herewith appended, marked E and F.

"IX. A preliminary inquiry as to the diseases of food-producing animals of the United States and the legislation, whether State or national, which seems desirable in regard to this subject.

"This has been under the direction of a standing committee of the board composed of Drs. J. L. Cabell, T. S. Verdi and P. H. Bailhache, and special reports upon the subject for this committee have been prepared by Prof. James Law, of Cornell University, New York, by A. Laintard, veterenary surgeon, New York, and by T. S. Verdi, member of the board. Copies of these reports are herewith appended, marked G.

"X. An investigation of the flow of sewers in relation to their sizes and gradients.

"This work has been carried on under the direction of Col. George E. Waring, jr., of Newport R. I., with a view to determining the most efficient and least expensive form of sewers.

"The preliminary report of Col. Waring on this subject is herewith appended and marked H. The investigation is still in progress, and will be completed during the ensuing spring.

"It may be observed that the results of this investigation have already been of practical importance, since it was the presentation of a portion of these results to the committee charged with the sanitary survey of Memphis which led that committee to recommend a scheme for the sewerage of that city, based on the researches

of Col. Waring, estimated to cost $225,000, in preference to a plan of sewerage prepared in the ordinary manner and estimated to cost $500,000.

"XI. A sanitary survey of the eastern coast of New Jersey, bordering on New York harbor is in progress, with the aid of this board, under the direction of the State board of health of New Jersey.

"XII. A sanitary survey of the city of Memphis, Tenn. This was commenced as soon after the close of the epidemic as possible, and is still going on, being under the direction of a special committee of the National Board of Health, of which Dr. J. S. Billings is chairman. A preliminary report of this committee, prepared to meet the urgent demand on the part of the municipal authorities for advice as to the course to be pursued is herewith submitted, marked K.

"XIII. An investigation as to the hygiene of the mercantile marine and as to what legislation is expedient to improve its sanitary condition. The report of Surgeon P. H. Bailhache, U. S. M. H. S., especially detailed by the chief of that bureau to prepare this report, is herewith submitted, marked L.

"XIV. An investigation by Dr. Elisha Harris, of New York, upon diphtheria, as it occurred in Northern Vermont, which is herewith submitted, marked M.

"XV. An investigation by Prof. Raphael Pumpelly, of the United States Geological Survey, upon the influence of various soils upon sanitation, especially with regard to drainage and methods of disposal of excreta. This has been but recently authorized."

The foregoing extract certainly indicates that the board has been active and comprehensive in the consideration of all subjects properly coming before it and in carefully planning investigations of importance, some of which will require several years to complete. The report next details what has been undertaken and accomplished in reference to quarantine regulations and the establishment of an international system of notification concerning the prevalence of infectious diseases.

The following extract concludes this part of the report:

"The great majority of quarantine establishments on our sea-

ports are either improperly located or do not possess the facilities necessary for properly dealing with infected ships, many of them amounting to little more, practically, than inspecting and boarding stations. Owing to the epidemic of the previous summer, unusual care has been exercised by the inspecting and boarding officers at the various quarantine stations, and no satisfactory evidence has been presented to the board that any outbreak of contagious or infectious disease has occurred in this country from importation during the present year. That this is the case, however, must be attributed mainly to good fortune and the fact that no dangerously infected ship has arrived at certain quarantine stations.

"It is not considered by the board to be necessary or desirable that every seaport in the United States, nor even that the majority of ports, should possess a complete quarantine establishment, including boats, lighters, wharves, warehouses, hospitals and other buildings necessary to properly care for an infected ship and its cargo, passengers, and crew in such a manner that there shall be as little detention or interference with commerce as possible, since such establishments are expensive both to establish and to maintain, and at many ports no infected ship might arrive for several years.

"It has therefore been decided that, for the present at all events, such complete quarantine establishments are only needed at Boston, New York, Philadelphia, Baltimore, near the mouth of the Chesapeake Bay, Wilmington, Charleston, Savannah, near Brunswick, Ga., or Fernandina, Fla., near Ship Island, Miss., and at some point on the Texas coast.

"The station at the mouth of Chesapeake Bay would care for some, if not all, infected vessels bound for Baltimore, Annapolis, Washington, Fredericksburg, Richmond, Norfolk and Petersburg, and would deal also with infected vessels bound for northern ports, which in their distress and in an emergency may put into Hampton Roads. The station near Brunswick or Fernandina has not yet been positively decided on. If established, it would care for infected vessels destined for ports on the Atlantic coast between Savannah and Key West. The quarantine station at Ship Island would be devoted to the treatment of infected vessels destined for the Gulf ports between and including Pensacola and

New Orleans, which would include the smaller ports of the Gulf coast of Florida, Alabama, Mississippi and Louisiana. The total expense of establishing these three quarantine stations is estimated at $100,000, and as each one of them is for the protection of several States, it seems eminently proper and desirable that they should be equipped and maintained by the United States.

"In addition to this there should be expended at other ports about $65,000. This work should be done at once in order to secure during this winter, as far as possible, satisfactory quarantine arrangements on the South Atlantic and Gulf coasts, to secure the prevention of the introduction of yellow fever through any of these ports. It is the opinion of the board that if, during the present winter, at all points where the fever has prevailed during the past summer, care be taken to obtain thorough ventilation and exposure to cold of all houses and inclosed spaces, and of all bedding, clothing, etc., and if local sanitation be vigorously and properly carried out, there will be little danger of an epidemic of yellow fever next year from causes now existing in the country. The board is using all its influence to induce local authorities to insure this cleansing, ventilation, etc., and has reason to believe that much will be accomplished before warm weather again sets in. Under these circumstances, the board is of the opinion that it is its duty to use the means at its command to have the maritime quarantine stations of the country placed in proper condition at once, in order that they may be ready to meet any emergency not later than the first of May; and it therefore proposes to go on and carry out the plans above suggested without delay.

"With regard to inland quarantines and quarantine stations, much must of course depend upon the existence of contagious or infectious disease, requiring their establishment. Irrespective of this, however, it is believed by the board that inspecting stations for steamboats should be established on the Mississippi river, at which all boats should be examined by competent inspectors, and certificates as to the sanitary condition of the boat given. This inspection should be carried on throughout the summer at all events, irrespective of the existence of yellow fever or other contagious or infectious disease in New Orleans or other ports upon the river, and it should apply to boats going south as well as to

those going north. That such an inspection, under the auspices of this board, would be acceptable to owners of steamboat lines on the Mississippi, the board has satisfactory evidence.

"Inspecting stations for this purpose should be located at New Orleans, Vicksburg, just below Memphis, and at Cairo. At each of these stations inspecting officers should be provided with a steam-launch so arranged that in most cases the inspection could be made with little or no hinderance, or but slight delay, to the boat. At Vicksburg, Memphis, and Cairo, the stations should be so located that arrangements can be made on shore, by means of tents, etc., to deal with an infected boat should occasion present. In addition to these stations and the boats, tents, and furniture connected with them, there should be provided for the use of the board on the Mississippi river a small and fast steamboat to be used as a patrol boat, more especially for visiting places on the river reported as infected, but which are remote from railroad communication. It is often extremely difficult to obtain access to such places within any reasonable space of time, since none of the steamboats plying on the river will land at them for fear of being quarantined at other points, and there is usually a non-intercourse, "shot-gun" quarantine established around them from the land side. The result is the rapid spread of the fever, great suffering, and ultimate danger to the surrounding country. Had the board had such a boat as above indicated at its command during the past summer it is probable that relief might have been promptly afforded to Concordia and vicinity, and that much suffering and loss of life might have been prevented. The total cost for establishing these inspecting stations and for the purchase of a small steamboat which shall be capable of making about fifteen miles an hour against the current and carrying three or four tons of freight in the shape of medical supplies, etc., is estimated at $35,000, and the board proposes to proceed at once to take the necessary steps to carry out this recommendation for the same reason as that given for acting at once with regard to the maritime quarantines, viz, that they may be ready for active operations not later than the first of May."

A brief history of the origin and progress of the yellow fever in Memphis and New Orleans in 1879 is given; following which

are the rules and regulations governing the board in regard to the rendering of aid to State and local boards of health, which have already been published in this journal. The report closes with a financial estimate of the amount of money that will be needed for carrying on its operations during the next fiscal year. The total expenditures of the board to the present date are $154,002.42. The amount needed for the next six months is estimated to be $284,330 and for the twelve months following, carrying the time to June 30, 1881, $202,050; making the total asked for to meet the wants of the board for the next eighteen months, $486,390.

Not only from this annual report, but from all we have learned of the doings of the national board thus far, we are satisfied that its members have devoted all the time and attention to the duties assigned them that could have been reasonably expected; and have accomplished as much as was possible to accomplish in the brief time which has elapsed since their appointment.

In regard to the abstract question, whether the permanent establishment of a national board of health is desirable or necessary, we would say that from principle we are opposed to that tendency which is everywhere apparent, to look to government for doing those things that the people are capable of doing for themselves; and especially are we opposed to the multiplication of governmental departments, bureaus, boards, etc. For, the more complicated is made the machinery of governments, the greater is the expense in proportion to the work accomplished. As all regulations in relation to the gathering of vital statistics and the carrying on of local sanitary improvements must emanate from the State and municipal governments, leaving the general government with proper jurisdiction over the sanitary matters connected with the army, navy, and commercial intercourse between the States and with foreign countries only, it has seemed to us that the already efficiently organized medical departments of the army, navy and Marine Hospital service, afforded all necessary channels for the operations of the general government, while the American Public Health Association constitutes a very proper head and bond of union for the State and local sanitary and health organizations. D.

The Metric System in Medicine.—We have not taken any measures to ascertain how far the druggists of this city or in the country have provided themselves with the means for filling prescriptions written in accordance with the metric system of weights and measures. We are quite sure, however, that in this city, and probably in all the more important towns in the country, they are so far prepared that no danger would attend the full, practical adoption of the system by physicians in their daily routine of practice. That the system has many advantages over the one hitherto in use, is manifest to all who have given it a fair trial. First. It enables us to express all the ingredients of a prescription in the same measure, instead of mixing grains, scruples, drachms and ounces. Second. It enables us to make a much more minute and accurate proportion of ingredients in prescriptions containing one or more articles, the doses of which are but the small fraction of a grain. For instance, in prescribing the bi-chloride of mercury with the tincture of cinchona: to get a proper relative dose of each for ordinary tonic and alterant purposes, there should be only one grain of the bi-chloride to four ounces of the tincture. But to order a four-ounce vial of medicine for a child of such age that the proper dose would be only eight or ten minims three times a day, looks like making a prescription that is to last something less than a year; yet we have always felt unsafe to order less than one grain of anything under the old system of weights. But with weights and apparatus for weighing grams, decigrams, centigrams, and milligrams, the various ingredients in a prescription may be adjusted with the utmost minuteness and accuracy. What we have said of the grain, applies equally to the scruple, drachm and ounce. We have a well understood sign in the "ss" for half a drachm or half an ounce, but none for one-third or one-quarter of a drachm or ounce. Therefore, while we can readily write ℥iiss, if we desire to express another ingredient in the same prescription at two ounces and a quarter, we must write it ℥xviii; if another in two and one-third ounces, we should be obliged to express it in ʒlvi. Third. The use of the decimal in the multiplication and division of quantities in the metric system is very much more simple and convenient than any other, as soon as we become accustomed to its use. It was not our purpose, however, at the

present time, to discuss the advantages or disadvantages of the metric system, but rather to urge the importance of having the profession decide with more promptness whether to adopt the system or not. It has been sanctioned and its adoption recommended by most of the important medical organizations, from the American Medical Association to many of the local societies. But at the present time its practical adoption is in a very mixed condition. Some medical teachers use it, and others, even in the same faculty, do not. Some writers and publishers adhere to the old system; others adopt the new; and still others give both. And the same is true of the individual practitioners.

This uncertain and mixed state of things should not continue long. It is already beginning to discourage some who had from the first earnestly adopted the metric system, under the expectation that such adoption was speedily to become general. If it is really desirable to introduce this system into universal use in our profession, steps should be taken without delay to secure some concert of action on the part of the teachers in medical colleges, the editors of medical periodicals, and the writers and publishers of medical books. The parties composing these three classes have it in their power to completely control the whole matter. If those engaged in medical teaching would use the language of the metric system in giving instruction; those editing medical journals, for the first year give all formulas in both systems, and after that period only in the metric; and those writing and publishing new works, do the same; in less than five years the new system would become as familiar to the great mass of the profession as the old one is now, and the transition would be practically complete.

Could not such concert of action as we suggest be easily obtained? There is a National Association of American Medical Editors, and an American Medical College Association, both of which are expected to hold meetings in close connection with the annual meeting of the American Medical Association, in New York, the first week in June next; and we suggest that this subject would constitute an important topic for full consideration at those meetings. The American Association of Medical Editors was organized in 1869, and has held a short meeting annually

since, doing little else than to listen to an address from the president, and elect new officers. We suggest to all our brother editors the propriety of giving this subject some attention, and coming together at the next meeting of our association, prepared to take definite and controlling action concerning it. We say *controlling* action, because the unanimous adoption of the system by the medical periodical press would soon induce co-operative action on the part of both medical teachers and book publishers.

D.

EXTIRPATION OF THE UTERUS.—In a recent operative clinic in the Mercy Hospital, Prof. E. W. Jenks, Professor of Gynæcology in the Chicago Medical College, found it necessary to remove the *entire uterus* on account of malignant disease. Of course it involved a free opening through the pelvis into the abdominal cavity, and a temporary escape of the intestines. These were carefully replaced, and the operation finished by closing the vaginal opening with silver sutures. The patient sustained the operation well, and subsequently made a rapid and complete recovery. She left the hospital a few days since for her home, able to walk about freely.

SOUTHERN ILLINOIS MEDICAL ASSOCIATION.—The recent annual meeting of this society appears to have been unusually well attended, and was an occasion of much interest and profit to its members. Drs. Hughes, Engleman and others were present from St. Louis, and addressed the meeting. The Southern Illinois Medical Association embraces a large territory in the Southwestern part of the State, and its members will doubtless give a cordial reception to the State Medical Society, which holds its next annual meeting at Belleville, on the third Tuesday in May next.

DR. WM. T. BELFIELD, of this city, is making preparations with a view to spending several months in Vienna, engaged in the special study of pathology. While there, he will be the special correspondent of the CHICAGO MEDICAL JOURNAL AND EXAMINER, and we shall take pleasure in laying before our readers the monthly labor of his ready pen.

# Selections.

OSTEOCEPHALOMA OF THE THIGH. Report to the Wisconsin State Medical Society. By J. G. MEACHAM, JR., M. D., of Racine.

On the tenth day of March, 1877, George G———, a young man of about twenty years of age, of German descent, came to my office to consult me about a tumor of his left thigh. He stated that for several years there had been on the outer side of the thigh a flat bunch, oval in outline, about two inches in diamter, which up to six months previous had given him no trouble, and had shown no signs of growth, but at that time, September, 1876, after violent exercise by jumping, it began to grow and had continued its development until the present time.

An examination of the tumor located it on the outer side of the left thigh, occupying the middle two-fourths in length, and firmly adherent to the bone. Its transverse diameter was greater than its anterio-posterior diameter, thereby presenting a broad flattened aspect. Its upper half was harder and less elastic than the lower part, and its general form was globular. The surface was somewhat lobulated, purple in color, smooth and glossy, having numerous tortuous veins ramifying over it. The thigh was not at all increased in size along its inner line, and but slightly enlarged in front or behind, but outward the growth stood prominent and bold.

A measurement around its largest part at the middle of the thigh gave twenty-five inches; two inches below this it measured twenty-two inches, while two inches lower still it was only fifteen inches, the natural circumference of his thigh. Some, though not severe, darting pains were felt in the tumor, but it was complained of most as an encumbrance by its size and weight.

The physical powers of the body at this time were somewhat enfeebled, and there was emaciation, notwithstanding the subject was always thin and spare, weighing but one hundred and nineteen pounds when in health. The countenance was pale and expressive of anxiety and suffering, evidencing cachexia. The patient, however, regularly followed his usual occupation, that of engineer, and walked nearly a mile to and from the shop in which he was employed.

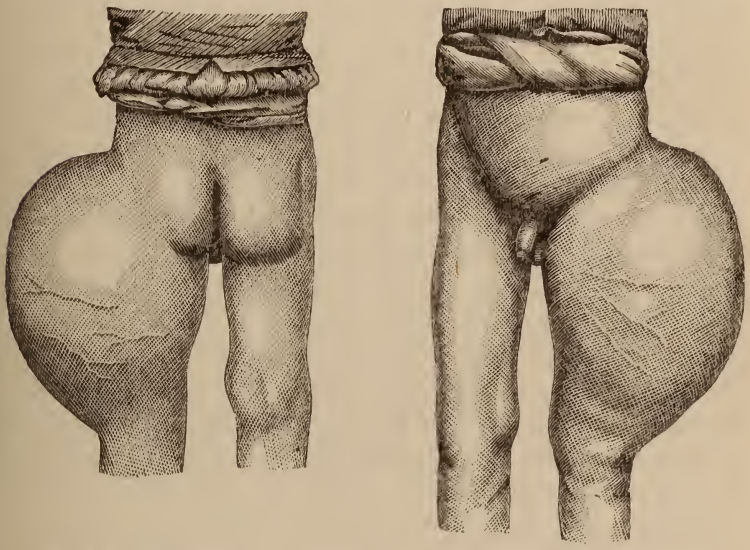
The one thought in my mind regarding this large and rapidly growing tumor was, that it was osteo-cancer, already beyond the reach of human aid. M. Amedée Forget, a French surgeon, in speaking of malignant osseous growths, asks this question: "Are there not, in the present state of science, clinical characters indicating to the surgeon whether or not to operate?" In this case, it seemed to me that the rapid growth, the peculiar form, the pain, the evident cachexia and emaciation, and the unfavorable location, were clinical characters enough to indicate the best thing to do, namely, let it alone. It was too large to be removed in any way, except, perhaps, by amputation at the hip-joint; but, considering the very great danger to life attending that operation, together with the probable infiltration of cancer-cells in the adjoining parts, it seemed best and consistent with good judgment, to discourage surgical interference and experiment, and to advise him to enjoy, under palliative means, his remaining months or years as best he could.

About four weeks subsequent to this he called again. There was no special change of growth in size or appearance. My father, Dr. J. G. Meachem, was present, and concurred in the diagnosis and advice I had previously given. Photographs of the tumor, made at that time, I now show you.*

Eight months had passed when the patient again came under observation at the office. During the time he had been subjected to all kinds of treatment by the usual number of medical pretenders that follow up a lingering, incurable case. His condition was one of greater weakness than before, with much more marked emaciation; the skin was of the hue peculiar to cancer cachexia, and the suffering was more acute and severe. The growth had

* Photographs were exhibited showing anterior and posterior views.

extended below nearly to the knee, and above to the hip, but did not yet interfere with motion in either joint. It also had overlapped the thigh anteriorly and posteriorly to its inner line. It now measured thirty-six and one-half inches in circumference at its middle, and thirty-two inches around two inches lower down, having, therefore, increased eleven and one-half inches, and this increase relatively the same throughout the entire mass. An appearance of still greater size was manifest in contrast to the greater emaciation of surrounding parts. A second photograph was made, and by comparing one with the other, the real increase is plainly shown. Up to this time he had followed his work, but now was obliged to remain at home, its bulk preventing locomotion.



OSTEOCEPHALOMA.—Anterior and posterior views when the tumor measured forty inches in circumference.—From photographs.

During the next two months it increased to forty inches. His weight at this time was one hundred and eighty-nine pounds. From this on for six months the usual condition of progressing emaciation and weakness continued, while the morbid growth enlarged day by day until it reached a size measuring fifty-eight inches (*nearly five feet*) in circumference. It now obliterated every natural outline of the thigh, hanging down over the knee, and encroaching on the abdomen above. The relative shape was

retained throughout its development. The skin was still intact, though very thin, and from the peculiar velvety feel in places, I think ulceration would have occurred soon. There was also evidence of deep fluctuation.

I believe pus is seldom if ever found in malignant growths, for the simple reason that the action is not inflammatory but rather a process by which the cells assume such a property of self-multiplication that their normal relation and mode of arrangement is destroyed. (Bennett.)

Dr. F. H. Hamilton says that portions of the tumor have usually an elastic feel, leading often to the suspicion that it contains pus. The word "suspicion," I take it, refers to a supposed existence of something that does not exist, and that in these growths pus will not be found. Not unfrequently, however, small cavities filled with clotted blood, dirty-looking serum, or soft, gelatinous matter are formed within them (Gross); and a knowledge of this, together with a consideration of the vitality of the patient, caused me to refuse a demand to puncture the mass, and to insist that it be allowed to take its own course.

A friend of the young man called another practitioner to see the case, who at once plunged a trocar deep into the softened portion, giving escape to about six quarts of dark-colored watery fluid. There was but little change in shape on the escape of this fluid. The water of decomposition and the serum of the blood dripped constantly from the opening, draining his life away. Air entered the cavity, hastening decomposition; gases formed rapidly, and it was amid a stench unbearable that death came to his relief on the fourth day. I was not present when the puncture was made, but from the young man's mother I ascertained the amount of fluid that escaped at the first gush.

Twenty-four hours after death I was sent for to incise the tumor (which I did), to facilitate the placing of the body in the largest size coffin made. Circumstances and conditions were such on that day that no satisfactory post-mortem examination could be obtained. The day following the interment it came about that the relatives of the deceased should exhume the body and grant me permission to remove and have the tumor and thigh-bone. The body was exhumed, and I disarticulated the thigh.

The cavity seemed hardly large enough to have contained the quantity of fluid said to have escaped when tapped. It still held a little dark grumous fluid, such as results from disintegration of tissue; also some soft, white, brain-like matter, but no pus was to be seen. Throughout the entire mass were numerous pieces of cancellated bone-structure that had been formed in the progress of the disease. They radiated in every direction, uniting themselves one with another, forming a framework to the entire growth. The interspaces were gelatinous and brain-like, only a limited amount of cartilage being observed, and that in the upper part. The muscular structure was past recognition. The soft parts were under rapid decomposition, and it became necessary to hasten maceration.

The femur, as cleaned, shows that the disease involved nearly the entire bone; a small portion of the lower end, and the articular cartilage of the head of the bone, alone being exempt. This latter corresponds to a fact pointed out long ago by Petit, "that although the epiphysis may have been completely converted into encephaloid matter, the cartilage of incrustation and of the neighboring joint never becomes implicated, and this, although the growth may eventually involve and include the whole of the rest of the articulation by extension to the capsule and the soft parts." (Erichsen.)

The shaft at its middle was bent and twisted upon itself about forty-five degrees, probably by the great weight of the growth dragging it outward and backward. Radiating spicula stood out in all directions from the entire surface of the shaft. There were also pillar-like projections reaching outward to the cancellated formations, bracing and supporting all. The greatest density of bone was behind and below the trochanter major, which, corresponding to the point first complained of, would seem to locate the original site of disease, from thence extending down along the shaft. Morbid action undoubtedly began beneath the periosteum. During maceration, large numbers of pieces of cancellated bone separated from the femur, and I present them here with the femur, for your inspection to-day.* Portions of some of them

* Pieces of all sizes, sufficient to fill a half-peck measure.

have become compact bone structures, and several others have calcareous deposits upon their surfaces.

The lowest two inches of the femur is much broader and thicker than natural, not wholly from the disease, I think, but from a peculiar development belonging to a heredity that exists in the family, about which mention will be made further on.

A photograph of the bone, made to a scale of one-fourth inch to the inch, shows the enormous bulk of the osseous structure belonging to this pathological specimen. The comparative size is seen by the natural femur at its side.

The nature of the growth was unquestionably cancerous, and known as osteocephaloma. It could in no wise be confounded with any other growth, except that form of enchondroma, where portions of the cartilaginous element become converted into bone and when by a certain softening, some of the characteristics of soft cancer are presented. Indeed, there are several conditions common to both. The shape or form may be globular, ovoid or lobulated in both. The surface may present the same smooth, tense, glossy appearance. The soft feel, or high degree of elasticity in either, may convey a sense of fluctuation. The tendency to take on rapid growth in one, is kindred to that of the other. But in addition to the similarities, there is in our case sharper pain, which is a very marked accompaniment in cancerous affections; an unusually rapid growth (two and one-half years), not so common in cartilaginous developments; an emaciation and cachexy peculiar to cancer; and on section a small amount of cartilage, and a great amount of gelatinous and brain-like matter found, all giving greater probability of the presence of encephaloid disease. If the presence of fluid within the growth suggests to the minds of any of you cystic disease or cystoma, I would say simply that there was no membranous or osseous envelope, without which there could be no cyst. Central softening of the mass gave opportunity for the accumulation of fluid, under the same laws that govern the passive accumulation of fluids in the natural serous cavities of the body when there is existing neighboring disease.

The remarkable size of the morbid growth I would specially notice. Upon this point I have taken pains to consult such authorities as

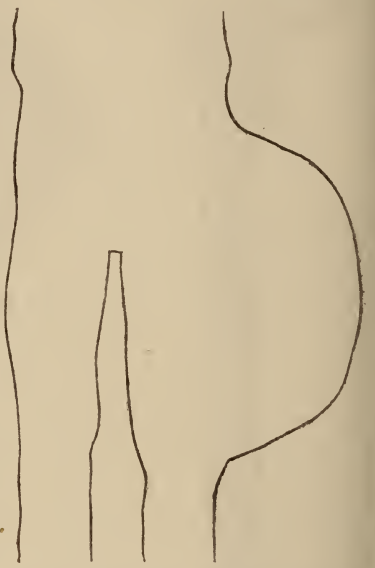
have been at my command, namely: Mott's Velpeau, Druitt, Erichsen, Gross, Hamilton, Bennett, Holmes, and Agnew, and about one hundred volumes of different medical journals. Most of these authors use expressions wholly indefinite, such as "considerable size," "large bulk," "great magnitude," "extraordinary development," etc., etc. A cocoanut and child's head are

OSTEOCEPHALOMA OF LEFT FEMUR.—A few of the pieces that separated during maceration shown. A natural femur to show contrast. From photograph.

instanced as representing the size of large osseous tumors. In the CHICAGO MEDICAL JOURNAL AND EXAMINER for December, 1877, is a synopsis of a case of malignant osseous tumor of the femur that measured twenty-five inches in circumference. In Dr.

Druitt's Surgery, edition of 1867, mention is made of a case of enchondroma by Dr. Frogley that reached a circumference of three feet, and another by Dr. Paget that was as large as a man's chest. These examples of large tumors are far short of the size of the one under consideration, and I am bold to say, that so far as I can ascertain, this is the largest growth from diseased bone that has been brought to the attention of the profession.

Its weight I have estimated to have been at least *one hundred and twenty-four pounds*, and this estimate is based upon the knowledge of the weight of the patient in health, one hundred and nineteen pounds, and when the tumor measured forty inches, one hundred and eighty-nine pounds, an increase of seventy pounds at that time. A further increase of growth of ten inches in circumference adds one-fifth in bulk, and weight fourteen pounds. The general emaciation of body usually amounts to between three and four ninths of the original weight, which would be from forty to fifty pounds. These sums, seventy, fourteen, and forty at least, aggregate a weight of one hundred and twenty-four pounds. This morbid growth, then, attained a weight greater than that of the healthy man himself.



OUTLINE DRAWING SHOWING TUMOR AT DEATH.—Fifty-eight inches in circumferance. Two years and two months of active growth.

I have now given the history and course of this case as they have come under my observation. I wish now to show a heredity that had much to do with the remarkable development just considered. On the mother's side I find nothing relative to any heredity, all having lived to good old age. On the father's side I find that all the ancestors were short-lived people, very few living more than fifty years. The father belonged to a family line, in the mining regions of Dolheim, Prussia, that had intermarried

for several generations. He was feeble when born, and was seven years of age before he could walk; and as he grew to manhood, he was unable to do vigorous work, and was exempted from the required term of service in the Prussian army. His joints were large, loose and clumsy, and the protuberances of the bones unusually prominent. A brother and sister had similar peculiarly-formed joints. He was the father of twelve children, and in them is shown in a remarkable way the heritage transmitted through a diseased parent:

C—, first child, dead, had enlarged ends of tibia and femur at knee-joints.

M—, second child, dead, had large broad knees, with loose articulations.

J—, third child, dead, constitutionally feeble.

J—, fourth child, living, has flat, broad knee, condyles very prominent.

C—, fifth child, living, has an exostosis one and one-half inches in diameter on outside of right femur.

G—, sixth child, the subject of this paper. In addition to the tumor described, there was an exostosis two inches in diameter projecting an inch above the surface, on the inner side of right tibia, as shown in the photograph.

L—, seventh child, living, has a sesamoid bone on the inner side of left knee, apparently in the tendon of the sartorius muscle as it passes behind the inner condyle of the femur. General health feeble.

M—, eighth child, living, has a sesamoid bone near left ankle-joint.

M—, ninth child, living, natural.

S—, tenth child, living, has an unnatural articulation at fifth metacarpo phalangeal joint of left hand.

J— B—, eleventh child, living, natural.

P—, twelfth child, living, natural.

It will be seen, therefore, from this list that nine of the twelve children have shown visible evidence of heredity in enlarged or malformed bones. Nor is this all; a child, now dead, born to C——, the fifth child, had congenital exostosis on the shaft of the right ulna. And the peculiarly formed knees, common to so

many of the family, are observed in a second child now living. This is evidence of heredity in three successive generations to my knowledge.

It is not probable, however, that this hereditary predisposition to localize deposit of bone material has to do with the malignancy of the growth described, but it has much to do with its unusual size and the formation of the bony structure within it, conjointly with the progress of the more active cancerous affection.

The lower extremity of the bone, as shown in the photograph, is more than twice as large as a natural femur at the same point. This is partly due to hypertrophy from disease; but in addition it represents the peculiar form and shape of the extremities of the bones at the joints referred to when tracing the family history. To sum up the interesting points of this case, we may notice:

1st. The existence of an exostosis excited to active growth by violent exercise, augmented by a hereditary tendency to deposit bone material, and finally degenerating into a condition of malignancy.

2d. The site of disease. Osseous tumors of the femur generally appear on the inner side at the lower extremity of the bone. This had a directly opposite location, appearing on the outer side at the upper extremity.

3d. Rapid growth; which in two and one-half years attained a size measuring fifty-eight inches (nearly five feet) in circumference, and a weight of one hundred and twenty-four pounds; and

4th. The awakening of a heredity shown in three successive generations, that in this case was roused to action under proper cause and conditions.

Besides the regular physicians of Racine, Dr. E. B. Wolcott, of Milwaukee, saw the tumor when in an advanced stage of development.

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IN order to relieve hiccough, inflate the lungs as fully as possible, and thus press steadily and firmly upon the agitated diaphragm. In a few seconds, the spasmodic action of that muscle will cease.

# Obituary.

## SURGEON-GENERAL E. B. WOLCOTT.

Dr. Erastus B. Wolcott, Surgeon-General of the State of Wisconsin, one of the most widely known men of the Northwest, died at his residence on Milwaukee street at 11 o'clock Jan. 5th, after an illness of one week. There are few men whose death would cause more general sorrow; few men have worked as faithfully and unselfishly, as long and laboriously, in one of the most noble of professions, as Dr. Wolcott. The announcement made this morning will carry pain to hundreds of households where the cheerful face of Dr. Wolcott has brought hope and his skill has brought relief from suffering.

Erastus B. Wolcott, M.D., was born at Benton, Yates county, New York, October 18, 1804, son of Elisha and Ann Hull Wolcott, who came from Litchfield county, Connecticut and were among the first settlers in that section of country. In 1822 Dr. Wolcott commenced the study of medicine and surgery with Dr. Joshua Lee, an eminent physician and surgeon of Central New York, and received a diploma from Yates County Medical Society in 1825. He attended the College of Physicians and Surgeons of the Western District of New York from 1830 to 1833, and took his degree in medicine and surgery at that institution. In the spring of 1835 he was examined by a board of army surgeons and received an appointment as surgeon in the United States army, Jan. 1, 1836. He resigned in 1839 and came to Milwaukee. In 1836 he married Elizabeth J. Dousman, who died in 1860, leaving a daughter and a son. Dr. Wolcott gave his children a liberal education, the former having graduated at Milwaukee Female college, and the latter at Yale college.

Dr. Wolcott was connected with some of the earliest enterprises of the State. He built the first mills at West Bend, and with others the first mill at Humboldt, near the city. He was one of the prime movers in building the first railroad in the State, from Milwaukee to the Mississippi River, and among the first in the Northwestern life insurance company. He was appointed trustee of the Wisconsin Hospital for the Insane, the first year, and re-appointed through Gov. Randall's and Gov. Lewis' administrations. He was appointed one of the regents of the State university in 1850. He was appointed surgeon of the State militia as early as 1842, by Gov. Doty, was commissioned colonel of a regiment in 1846, and in the same year major-general of the first division of Wisconsin militia. He held through the war of the rebellion the position of surgeon-general of Wisconsin, with the rank of brigadier-general, which he retained to the day of his death. In 1866 Dr. Wolcott was appointed by Gov. Fairchild commissioner to represent Wisconsin at the universal exposition at Paris in 1877. In the same year he was appointed by Congress manager of the National Home for Disabled Volunteers, near this city, to which position he was re-appointed in 1875.

Dr. Wolcott was married Oct. 12, 1869, to Laura J. Ross, M. D., who was among the first women who graduated in medicine and received hospital instruction in this country. Dr. Wolcott was a lineal descendant of Henry Wolcott, Esq., a landed gentleman of England, who came to America in 1630. He was the son and heir of John Wolcott, of Golden Manor. The manor house is still standing in England, is of great antiquity, and richly ornamented with carved work. Upon the walls may be seen the motto of the family coat of arms: *Nullius addictus jurare in verba magistri* (inclined to swear on the words of no master.) This sentiment was in harmony of the spirit of the English gentlemen of the middle ages and that of the Puritan of a later date, who spurned the dictation of ecclesiastical wisdom. This peculiarity of the family lost none of its force in the character of Dr. E. B. Wolcott, who derived his knowledge of the Author of all things from the study of His works.

Henry Wolcott, of the old English gentry, was the first magis-

trate in the Connecticut colony, and his descendants in a direct line for over one hundred and eighty years, were counselors of war, officers of the army during the revolution, one a signer of the Declaration of Independence, representatives and senators in congress, chief justices of the supreme court, and six governors of Connecticut, three bearing the name of Wolcott—Roger, Oliver and Oliver junior. Roger Wolcott, the first governor of Connecticut, was judge of the county court, deputy governor, chief justice of the Superior court, and governor of the State. He lived to see his son Oliver governor during fourteen years, and his grandson Oliver during four years. Of his descendants bearing the name of Wolcott, twelve were graduates of Yale college, two of Harvard university, and two at other New England colleges previous to the year 1834. Those qualities which characterized the ancestors of Dr. E. B. Wolcott, whether by hereditary descent, by example, or education, seemed to have culminated in him. His form was symmetrical, his movements graceful and almost up to the day of his death his youthful energy seemed unimpaired. His mind was vigorous and active, embracing a wide field of observation. Always eminent in his profession, he kept a steady step in the march of medical science Skilled as a surgeon, the knife never trembled in his hand. Unerring in his diagnosis, he waited with the patience of a nurse. His sensibilities were always keenly alive to every object of human suffering. As a son, husband, father and friend he discharged his duties with scrupulous fidelity. We have been told that Cervantes "smiled the chivalry of Sham away." If so, she, like Liberty, took her flight to the new world, and found worshippers in its forests. If truth, justice, honor and mercy are her characteristics they were all happily personated in the character of the late Dr. E. B. Wolcott.

A week before his death, at the solicitation of members of the profession at Horicon, Dr. Wolcott generously left his business to give testimony as an expert in a suit for malpractice. He was kept in the court-room till ten o'clock at night, subject to draughts and changes of temperature. and when he went to his hotel, found he had taken cold. The symptoms of pneumonia rapidly appeared and when he was brought home his condition was hopeless. All

was done for him by his warm friend Dr. Spearman and others, that was possible, but to no purpose. He sank steadily and Monday morning, Jan. 5th, all hope was surrendered. At eleven o'clock p. m. he breathed his last, surrounded by loving friends.

The flag on the capitol was placed at half-mast in respect to the memory of Surgeon-General Wolcott, and universal regret expressed at his sudden death. The following general order was issued:

"STATE OF WISCONSIN, EXECUTIVE OFFICE, MADISON, JAN. 6, 1880.—*General Order No.* 2.—The sad duty is devolved upon the Governor of announcing to the people of Wisconsin, and especially to the officers and men of the Wisconsin National Guard, the sudden and unexpected death of Brig. Gen. Erastus B. Wolcott, M.D., which occurred at his residence in the city of Milwaukee, at 11 o'clock yesterday evening. Gen. Wolcott was born in Benton, Yates county, New York, in October, 1804. He received his diploma as a doctor of medicine in 1825. He was appointed surgeon in the United States army in 1836, and resigned in 1839, and the same year settled in Milwaukee, where he has ever since resided. In 1842 he was appointed surgeon of the territorial militia, by Gov. Doty. In 1846, colonel of a regiment, and in the same year major-general of the first division of Wisconsin militia. At the breaking out of the war of the rebellion, he was appointed to the laborious and responsible office of surgeon-general of the State, and with the exception of a brief interval of about three months, continued in the discharge of the duties of that office, with universal approbation, during the whole period of the war, and until January 5, 1874. On the 11th day of January, 1876, he was again appointed surgeon-general, and continued as such by successive appointments until relieved by death, his last commission having been issued yesterday, in the hope and expectation that his indisposition would be but temporary.

"Although prominent in his chosen profession in general practice as well as in his connection with the army and the Wisconsin militia, it was not alone in these relations that he was known and respected. In 1850 he was appointed a regent of the University

of Wisconsin. In 1860 a trustee of the State Hospital for the Insane, holding for six years. In 1866 a commission to represent Wisconsin at the universal exposition in Paris; and the same year a manager of the National Home for Disabled Volunteer Soldiers, which office he held by reappointment at the date of his death.

"It may be truthfully said of Gen. Wolcott that in all these public positions, and in the wide and possibly more important sphere of a citizen, he was efficient, faithful and zealous. Broad and sympathetic in his views, polished in manner, wise in counsel, vigorous in action, the personification of honor and integrity, his death may well be mourned as a public calamity. In token of respect for his memory, the members of the staff are requested to wear the usual badge of mourning for a period of thirty days from the receipt of this order, and all officers of the Wisconsin National Guard will wear a similar badge during the same period, when in uniform. On the day of his funeral the flag upon the capitol will be displayed at half-mast, and the adjutant general will direct such guards of honor and formal escort to be furnished as may be agreeable to the family and immediate friends of the deceased. (Signed), WM. E. SMITH, Governor."

The members of the Milwaukee County Medical Society, and many of the prominent physicians of Milwaukee, met in the parlors of the Newhall House, and after somewhat extended remarks by several of the gentlemen in regard to the life and services of the late Dr. E. B. Wolcott, adopted the following resolutions:

"WHEREAS, By the will of the Divine Author of Creation, our honored associate, Dr. E. B. Wolcott, has been removed from among us, and the medical society of Milwaukee county has thereby been deprived of one of its valued members, we desire to give expression to our respect, esteem and affection for his memory; therefore,

"Resolved, That we desire as individuals and as a society to record our appreciation of his life and character, of his worth as a scholarly gentleman, and our admiration of his noble qualities of head and heart.

"Resolved, That more than fifty years of professional labor, mostly in the State of Wisconsin, have won for him a wide-spread confidence and many honors justly conferred, and a distinguished place among the surgeons of the country.

"Resolved, That in the life, labor and character of Dr. E. B. Wolcott we have an example of industry, manliness and usefulness, in a high degree commendable and worthy of imitation.

"Resolved, That in the death of Dr. Wolcott this society, the medical profession of this city, and society in general have sustained a great loss.

"Resolved, That this society feel that words are inadequate to express the full sense of this bereavement, but desire to record the estimation in which the deceased was held, whose memory they will cherish with the sincerest affection.

"Resolved, That we tender to the family of Dr. Wolcott our profound sympathy in their bereavement.

"Resolved, That these resolutions be recorded in the minutes of this society, and a copy be sent to the family of the deceased."

The society voted to attend the funeral in a body.

At a meeting of the Milwaukee Academy of Medicine, convened to give expression of sentiment in regard to the recent death of Dr. Wolcott, of this city, the following resolutions were unanimously adopted:

"Resolved, That in the death of Dr. E. B. Wolcott, Surgeon General of the State, the people have lost a true and generous friend, and the profession an elder brother, whose skillful hand was ever extended at the call of distress and suffering, knowing no distinctions of wealth among his patients, no limits save those of honor in his professional associations. The name of our departed friend will ever remain a revered one in Wisconsin homes and medical gatherings. The officers of this society are hereby instructed to communicate to his family this expression of our regard; and to invite the homeopathic physicians of Milwaukee to attend his funeral in a body, as a mark of respect and esteem for one whose heart rose above all distinctions of sect, party, or pathy, and whose last professional act was in defense of a homeopathic physician.

The following general order was issued from Washington, D. C.:

*Head-Quarters National Home for Disabled Volunteer Soldiers.*
WASHINGTON, D. C., January 6, 1880.

The telegraph brings the mournful news of the death of Manager Erastus B. Wolcott, of Wisconsin.

It is fitting when a good man dies that those associated with him, at least, should pause in their pursuits, in reverence to his memory. It is therefore ordered:

*First.* That on the day of his funeral, guns shall be fired half-hourly from sunrise until the hour thereof, at each Branch.

*Second.* That the flags shall be at half-mast from the receipt of this order, including the day of the funeral.

*Third.* That the several officers of the Home shall wear the usual badge of mourning for thirty days.

*Fourth.* That on the day of the funeral all ordinary avocations and business shall be suspended.

*Fifth.* General Hincks is instructed to furnish such escort, and pay such honors to the deceased as may be acceptable to his family, and will, on receipt of this order, give notice to the other Branches of the day and hour of the funeral.

*Sixth.* This order shall be read to each company in the several Branches by its sergeant on the morning of its reception.

BENJ. F. BUTLER,
*President Board of Managers.*

OFFICIAL:
EDW. W. HINCKS,
*Commandant.*

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THE post-graduate, or practitioners' courses of medical lectures, in the colleges of this city, are promising well. That at Rush College, now in progress, is well attended by medical gentlemen, who are much pleased with the character of the instruction given. That announced for the Chicago Medical College begins on the 31st of March next, and will doubtless meet with a deserved success.

# Items.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES of MEDICAL OFFICERS OF THE UNITED STATES MARINE HOSPITAL SERVICE. *October* 1, 1879, *to December* 31, 1879.

*Bailhache*, P. H., surgeon, relieved from duty, port of New York, and ordered to Philadelphia, temporarily. Thence to resume his duties as member of the National Board of Health, Oct. 25, 1879.

*Hutton*, W. H. H., surgeon, relieved from duty, port of New Orleans, and ordered to Detroit. Nov 1, 1879.

*Fessenden*, C. S. D., surgeon, relieved from duty, port of Portland, Maine, and ordered to New York. Oct. 25, 1879.

*Doering*, E. J., surgeon, relieved from duty, port of Philadelphia, and ordered to Portland, Maine. Oct. 25, 1879.

*Austin*, H. W., assistant surgeon, relieved from duty, port of Key West, and ordered to New Orleans. Nov. 1, 1879.

*Stoner*, G. W., assistant surgeon, relieved from duty, port of Buffalo, and ordered to Philadelphia. Oct. 25, 1879.

*Fisher*, J. C., assistant surgeon, detailed as chairman of board for the physical examination of candidates for promotion in the revenue marine service, Nov. 20, 1879. Granted leave of absence for nine days from Dec. 19, 1879. Dec. 17, 1879.

*Godfrey*, John, assistant surgeon, ordered to proceed to New Orleans for temporary duty during illness of surgeon Austin. Dec. 29, 1879.

*Goldsborough*, C. B., assistant surgeon, detailed as recorder of board for the physical examination of candidates for promotion in the revenue marine service. Nov. 20, 1879.

*White*, R., jr., assistant surgeon, ordered to Buffalo, Oct. 24,

1879. Orders to Buffalo revoked; ordered to report to surgeon Fessenden, New York, for duty. Nov. 12, 1879.

*Irwin*, Fairfax, assistant surgeon, upon expiration of leave of absence to proceed to Charleston, S. C. Oct. 31, 1879.

*Glazier*, W. C. W., assistant surgeon, relieved from duty, port of Charleston, S. C., and ordered to Key West, Fla. Oct. 31, 1879.

*Cooke*, H. B., assistant surgeon, relieved from duty, port of Pensacola, Fla., and ordered to Buffalo, N. Y. Dec. 1, 1879.

*O'Connor*, F. J., assistant surgeon, ordered to Philadelphia for temporary duty, Nov. 10, 1879. Ordered to Buffalo, N. Y., for temporary duty, Nov. 12, 1879. When relieved by assistant surgeon Cooke, to rejoin his proper station. Dec. 9, 1879.

*Porter*, F. D., assistant surgeon, assigned to temporary charge at Detroit Marine Hospital, Oct. 25, 1879. When relieved by surgeon Hutton, to proceed to Chicago and report for duty to Surgeon Miller. Dec. 17, 1879.

### PROMOTIONS.

*Austin*, H. W., surgeon, promoted to be surgeon from Nov. 1, 1879. Nov. 3, 1879.

*Gassaway*, J. M., passed assistant surgeon, promoted to be passed assistant surgeon. Dec. 12, 1879.

*Smith*, Henry, passed assistant surgeon, promoted to be passed assistant surgeon. Dec. 12, 1879.

*Stoner*, G. W., passed assistant surgeon, promoted to be passed assistant surgeon. Dec 12, 1879.

### RESIGNATIONS.

*Ellinwood*, C. N., surgeon, resignation accepted to take effect Oct. 2, 1879. Oct. 2, 1879.

*Brown*, J. A., surgeon, resignation accepted to take effect Nov. 1, 1879. Nov. 1, 1879.

*Dana*, C. L., assistant surgeon, resignation accepted to take effect Nov. 15, 1879. Nov. 11, 1879.

## ANNOUNCEMENTS FOR THE MONTH.

### SOCIETY MEETINGS.

Chicago Medical Society—Mondays, Feb. 2 and 16.
West Chicago Medical Society—Mondays, Feb. 9 and 23.

### CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.
Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.
Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.
Woman's Medical College—3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Hollister.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.
Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.
Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

THE

CHICAGO MEDICAL

# JOURNAL & EXAMINER.

VOL. XL.—MARCH, 1880.—No. 3.

[In these pages dimension and weight are expressed in terms of the Metric System, and temperature in degrees of the Centigrade Scale.]

## Original Communications.

### ARTICLE I.

THE MECHANICS OF THE OBSTETRICAL FORCEPS. A Thesis presented to the Chicago Gynæcological Society, by JOHN BARTLETT, M.D., January 16, 1880.

MR. PRESIDENT: I have announced for my subject this evening The Mechanics of the Obstetrical Forceps. While it is not my intention to go elaborately into the subject, I shall offer some remarks on the several portions of the instrument.

#### THE HANDLES.

The first forceps of which we have a reliable report, made by Chamberlen, had a handle like those of scissors, and the first instrument described and figured in obstetrical literature, that of Giffard, noticed by Chapman in 1739, had one of iron forming a hook, the point of which was turned toward its fellow. A few years later Smellie adopted the handle of iron and wood, which has served as a model to the present day.

The thin iron handles of Giffard are also now in use in a

modified form, as may be seen in the standard instruments of Hodge, Wallace and others. And this, notwithstanding that a worse form for a handle can hardly be conceived: in no department of mechanics or art, probably, can there be found a tool intended for the powerful grasp and traction of the hand, made of small, polished, springing rods of steel terminating, as a provision against slipping, in yet smaller rods, set at an angle to the others. In practice they fail to furnish a good hold for the hand in adjusting the instrument, and as a means of traction they are even more faulty. I can conceive of nothing but imitation which has kept such models so long in existence.

### THE SHANKS.

The relation of the handle to the shank in the majority of instruments is that of a continuous, or nearly continuous line. The handles of Hodge's forceps are depressed slightly below the shanks in order to "preserve the line of traction of the blades." The handles of the forceps of Bedford, Aveling and Fitch are curved more or less downward, the latter two furnishing an admirable pistol-handle grip.

The shanks of the earlier forceps formed part of the cephalic curve in diverging from one another near the lock; later, as in Hodge's forceps, the head curve was formed almost entirely by the blades, the shanks being more or less parallel to one another. The object of this change was to secure a more easy application of the clams to the head, seeing that the mother's tissues permitted of a freer movement of instruments so formed and tended less by pressing forward the shanks to push or tilt the blade out of position. The new shape also was intended to render less decided that unnatural form of stretching of the perineum observed when it is compelled to span over the wide space between the shanks of forceps of the older style, as the head nears the vaginal outlet.

### THE BLADES.

The blades of the forceps first made by Chamberlen have served as a model for all others. Various minor changes in the cephalic curve have been made. This curve, I believe, in almost all forceps, has been adapted for that position on the head which

it most generally assumes in low deliveries. The more recent instruments, however, as that of Wallace, are apparently constructed, as they should be, not only with reference to fitting the head as presenting low in the pelvis, but also with regard to seizing and holding it when at or above the superior strait. The internal lateral curve of some forceps, by which I mean the curve from side to side on the inner face, as in that of Dr. Davis', imitated in the genuine Hodge's instrument, is so marked that we may assume that the originator counted largely upon it, as a species of counter-sinking, for making firm the grasp of the head. It would be desirable to form this face of the blade to correspond as nearly as possible with that portion of head and face to which it is more generally applied. From measurements made by myself, it would appear that this internal lateral curve near the heel of the blade should correspond to a segment of a circle having a radius of $2\frac{1}{2}$ inches. While near the point, the curve should be one of $4\frac{1}{2}$, and about the middle of the clam 3 inches radius. The external lateral curves embraced by the walls of the parturient canal, should correspond to those of the internal curve, the thickness of the clams at the several points of measurement being, of course, added to the several radii above given.

The pelvic curve, invented, as is generally supposed, by Levret and Smellie, in 1747–1851, is the most important of the changes made in the instrument since its origination by the Chamberlens. It has been variously modified so that while some recently devised forceps have a curve as high as $4\frac{1}{2}$ inches, the majority of practitioners seem, in their selection of instruments, to indorse the statement of Barnes, that the curve should be moderate. The fact is, as will appear further on, that while a high curve seems desirable, as ordinarily used, forceps so constructed have not a good hold, or they have an inconveniently wide blade, and all of them tend to slip off in the direction of a line joining the resistance and the power.

### THE MANNER AND CAUSE OF SLIPPING OF THE BLADES.

The forceps may slip off in the direction of the cephalic curve, by the opening or springing of the points of the blades; or the blades may be drawn off the head while yet in a fair position to

hold, in a line more or less departing from their long axis. In the one case the head may be represented as slipping through the yielding ends of the blades; in the other as slipping between their edges. The cause of the one of these modes of slipping may be too slight a cephalic curve, or too weak a blade. The cause of slipping through the blades' edges is traction in a line out of their longitudinal axes—usually the result of drawing upon curved forceps in a line parallel to their shanks, deviating more or less from the axes of the blades, according as the pelvic curve may be higher or lower.

The blades of Smellie's forceps had a moderate width. When the second curve was added, the direction of traction falling at more or less of an angle with the blades, developed a tendency to slip off the head sidewise, as explained by Chapman in his (the first) description of the forceps. Doubtless the new pelvic curve was one of the causes of the insecure hold of Giffard's forceps, which forced Chapman, as he says, to lay the instrument aside, and resort to turning and the fillet for ten years.

In this connection I may cite the statement of an older writer, to the effect that Levret's curve, as first devised, was more considerable than that of his latest instruments. We may safely presume that once the conception of conforming the forceps to the curve of the pelvis having entered the mind of Levret, he proceeded to take the pelvic curve as a guide. Then we can as easily imagine that when he came to use the instrument, he quickly discovered that a pronounced curve had the fatal disadvantage of allowing of lateral slipping, and that finally he compromised between the necessity for a curve and the inconveniences of a considerable one, by adopting that one which has retained its place for more than a hundred years.

To counteract the tendency to slipping off sideways, we may suppose that Dr. Robert Wallace Johnson, who wrote in 1768, devised his peculiar forceps, the lower rim of the blade of which projected awkwardly backward, forming the so-called perineal curve, so that one rim of the instrument might rest in front of the parietal protuberance, while the other took strong hold behind it. This instrument was followed by the Davis forceps, constructed with like intention, and this latter blade, variously modi-

fied, has come down to the present generation in the standard instruments of Hodge, Wallace, Smith and others.

### THE LOCK.

The lock of the forceps has frequently been changed since the time of Chamberlen, and not always for the better. He tied his blades together with a thong, passing through holes suitably located. Giffard, or some one before him, thought to improve upon this by substituting a screw. This was discarded by Chapman; and as I regard the setting aside of this mode of connecting the branches, and the final substitution of a different method, as of particular interest, I beg leave to introduce some extracts from the Midwifery of Dr. Chapman, published in 1739.

Please to observe with what emphasis he declares that his instrument held very much better, and was applied with greater ease to the patient and himself, when the blades were loosely interlocked and held together with the hand, than when stiffly joined by the screw.

"When the blades are passed they are then to be brought together, and, if you please, the screw may be put through and fastened with the button, though there is no occasion for the loss of so much time, for without doing this the hand will prove sufficient to keep them together." (It is necessary here to explain that in Giffard's forceps, which Chapman used, there was a recess in one blade at the lock into which the other rested as we see in some pincers used by artizans.)

"It is much better" continues Chapman, "that the forceps should not be joined or fixed by a screw, because when they are not screwed together, though they should not happen to be exactly opposite to each other, yet they will turn so as to take fast hold of the head and readily extract it."

"I have always found the instrument far less apt to slip since I omitted fastening (screwing) the parts together; and with more ease to the patient as well as myself, and in much less time than before, have found the head of the child fairly fixed in the instrument."

"Mr. Giffard frequently complains that his extractor (forceps)

slipped, which I am fully persuaded it would not have done if the parts had been left unjoined (unscrewed) as I now use them."

Subsequently to this writing Dr. Chapman (according to Rigby) invented that method of uniting the parts of forceps which has come down to us as the English lock, though it is to be regretted that the efficiency which its originator strove to give it has been and is now too often marred by changing it from a loose to a tight lock. The lock of Siebold known as the German, as well as the pivot lock, known as the French, and all the modifications of it which have fallen under my notice are greater or less improvements upon the Giffard lock.

I shall speak presently of the part which the lock plays in securing thorough opposition of the blades and a firm hold; and before reaching that subject I wish to call attention to a lock recommended by Dr. Bond in the *American Journal of Medical Sciences* for 1850, and described and figured in *Churchill's Midwifery*. The very stout and peculiarly shaped screw of this lock was designed by its inventor to allow the rocking of the blades from side to side about a line passing centrally from heel to point. This lock is perfectly adapted to such a purpose, and it would, without doubt, with some modification, admit of a see-saw motion of the blades on the lock as a pivot and in parallelism with the central plane of the instrument, and what, as will be seen, is of great importance, this lock would regulate both the rocking and the other motion, which I shall call racking, so that both movements may be limited within proper bounds.

Some writers express a preference for the English lock because it is simple and easy to lock and unlock. A few, as J. Y. Simpson, take note of the essential point, that it should be loose. It is not such a lock as this (showing forceps with a very close lock) that Chapman recommended, but such as this (showing a genuine Simpson's forceps).

Before following me into the study of the advantages of this lock, please note particularly its characteristics. Observe the ends of the handles while I rack them by one another, when closed. You see that they have a play so considerable that the upper surface of the right handle nearly corresponds to the lower surface of the left, and the reverse. Now observe the points of

the blades while the handles are racked as before and note how one plays by the other in the plane of the handles. Now remark the motion of a blade when a movement of rotation is imparted to its handle.

I desire to call your attention to the advantages of these movements and I will illustrate what I have to say on these forceps, known as the instrument of Dr. Zeigler or Dr. Barclay; for in them there is such an exaggeration of the movements to which I wish to call attention, that they cannot fail to be noted all over the room.

I will first state the advantages of the loose lock and then illustrate them with the instruments and model,

1. The loose-lock forceps are easier of application. 2. They are less apt to injure the head of the child. 3. They can be used with less pain to the patient. 4. They are less liable to injure the tissues of the mother. 5. A less amount of traction is necessary with them than with other varieties. 6. They hold the head seized in whatever diameter or direction, with a powerful grasp. 7. In the event of the necessity arising for turning the head in the pelvis, as in rotating the occiput forward, the loose-lock forceps renders the operation safer and easier.

Let us consider the advantages here claimed, seriatim.

(1.) They are easier of application: The greater facility of application has no reference to the introduction or near apposition of the blades, but to their *locking*. What is the obstacle to the locking of the forceps when the blades are very nearly but not quite in apposition? Let us see. Take this stiff-lock instrument, a modern Bedford, and apply it to this head, we will say in the left occipito-cotyloid position. Here rests the right blade, over the occiput and the left over the brow, but not over it exactly, for it rests on, and impinges against, the head by the posterior rim of the blade only. Note the position of the anterior rim, how it projects in front of the head; in this instance quite an inch. Now, we are ready to appreciate one of the causes of difficulty in locking. When not locked but in near apposition, this left blade would rest thus, upon the front and side of the forehead and bound down in that position by the vagina acting like this wide rubber band, which is drawn over the blades. Let

us now attempt to lock the forceps. You observe that it cannot be done without stretching the rubber band; that the rotation outward of the blade in an attempt to cause it to assume the required position of exact apposition to its fellow, is resisted by a force proportionate to the strength of this band, or, we may say, of the walls of the parturient canal. In practice, encountering such a resistance when the forceps are as here represented, what do we do? We are told by the experienced to press the handles far backward, and to push the blades upward; why? For this reason; by so doing, we cause the wide part of the blade to move off of, and above the point where the vagina clamped the clam into a wrong position, and in lieu of the widest surface, we substitute as the portion resting on the head, the narrowest part of the blade; then we make an effort at locking. The stretching of the vaginal wall, the degree of lifting of it from the head, necessary for the twisting into position of the blade, is much lessened, and the effort at locking is probably a success. Now, with the loose-lock forceps, *all this difficulty is avoided.* The blades, when introduced, assume exactly the position of those of the stiff-lock instrument just pointed out; but when we seek to lock them there is no difficulty; the loose-fitting lock allows the pronated blade to accommodate itself to the surface of the head, and locking is at once effected, without resistance from the vagina.

(2) It is much less apt to injure the child. Let me recur again to the position of this rigid-lock instrument on the head, at least with reference to one of its blades. See how the entire hold of the clam rests on one narrow rim, and please to observe that just in proportion as the hold is slender must the compression, to render it secure, be increased. Contrast the position and hold of this blade with that of the Barclay forceps. Note how the blades of the latter are equably and closely pressed against the surface of the head, and no comments will be necessary to assure all of the greater safety to the child in the use of this instrument.

(3) It can be used with less pain to the patient. I presume there are few practitioners here who have not remarked, and perhaps been perplexed at, the outcry of the patient, "You are cutting me," at the moment when, after a propitious locking of the instrument high up, we have begun to draw the blades down

firmly on to the head, and before we have made any actual extractive efforts. I have been annoyed and puzzled by this statement of the patient, fearing lest I had included some of the mother's tissues in the grasp of the instrument, when the favorable result would show that such could not have been the case. Now, my opinion is that the pain of which the mother so complains is referable chiefly to the distention which the edge of the forceps makes on the vagina in thrusting it away from the head, in the manner which I have just illustrated. As this stretching of the vaginal tissues is avoided in the Barclay forceps, it may be said that it can be used with less pain to the mother.

(4) And for identical reasons it will be admitted that the loose-lock instrument is proportionately less apt to injure the maternal structures.

(5) It follows, also, that a less amount of traction is necessary with this instrument, inasmuch as the blade is not forced to carry before it, as it were, a wave of distended vaginal wall.

(6) That the hold of an instrument grasping the head as it does, with both rims of each blade flat down upon it, accommodating itself to any inequality in the shape of the head, is unusually firm, needs only to be stated to be acquiesced in, but no consideration of the subject would give one who had not tested these instruments an adequate idea of their really remarkable tenacity of grasp. I invite any gentleman interested to seize this model head with any instrument he may choose, let it be never so stout and unyielding in its blades, and to say whether any such instrument has a firmer grasp than the comparatively delicate blades of this straight Barclay forceps. Turn the head in any and every possible and impossible position and you find this instrument ready to grasp it with "an iron jaw."

(7) In the event of a necessity for turning the head, it would prove certainly a safer instrument than the ordinary forceps, because there would be no outjutting blade to drag upon the vagina, and render the rotation more dangerous, difficult and painful. The blades of the forceps have been well likened to a pair of hands. The mechanism of the loose-lock instrument in seizing the head in a diagonal position may be illustrated by extending this comparison, so that the forearms represent the shanks.

Now if we place the hands upon a head with the occiput obliquely forward and toward the right hand, in positions corresponding to the blades of the forceps under consideration, we shall find that the right forearm is on a higher plane than the left, so that the ulnar margin of the right hand is about on a level with the radial margin of the left (representing the displacements of the blades in regard to the horizontal plane of the closed handles) and that the right hand is inclined slightly toward supination, while the left tends toward pronation, representing the "rotation" of the blades.

There is a certain disadvantage attending excessive looseness of the lock. All of its bearings tend to cause the blades to assume the normal position regarding each other, that is, to lessen and to destroy the displacements of rocking and racking.

Now, when the head is seized in a diagonal position, one of the blades is pressing inward and forward against a surface of the head corresponding to a diagonal diameter of its oval. While the other blade is pressing inward and backward at the opposite diameter, thus producing a very strong tendency to turn the head so that the longer diameters of the oval shall coincide with the conjugate diameters of the pelvic canal. Now, where the head lies with the forehead inclined backward, I know of no objection to this forced rotation of the occiput forward. But when, as usually happens with the head high up, the occiput is directed backward, the tendency of these forceps is to rotate it into the hollow of the sacrum, and thus greatly to increase the difficulty of the delivery. This forced rotation of the occiput is a movement so directly contravening the plans of nature, that I should hesitate to apply such an instrument to a head known to present with the occiput inclined backward. This tendency to rotate the head is sometimes manifested in the ordinary forceps, but, for obvious reasons, it is much less marked in them than in those with very loose locks. It would appear, therefore, that the movements in the Ziegler and Barclay forceps may be excessive, while in a genuine Simpson instrument there may be the proper measure of looseness of lock.

The rocking motion of the blades is most effective in the straight forceps, and it becomes less and less efficient as the axis of the blades departs from the axis of the handle. So that in

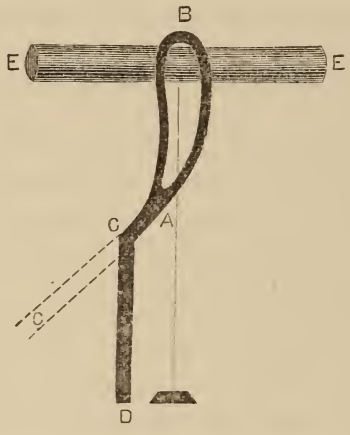
the very high-curved instruments, the movement is but little available, and if in them the rotation be allowed to be considerable, the hold of the instrument is destroyed. For where a rim of the forceps, because of a high curve, lies far to one side of the axis of rotation (the line of the handle) rotation outward, for instance, becomes (the rims being at the extremity of the long arm of the lever), a forcible lifting of the blade from its hold on the head. Fortunately, however, the hold of high-curved forceps with a stiff lock in high deliveries, is good when the curve of the instrument, or resiliency of the perineum is sufficient to allow of a proper grasp of the head. Thus the hold of the ordinary forceps with one blade over the occiput, and the other on the forehead is firm, and a similar hold over an oblique diameter is often strong. For such deliveries, it would seem desirable to retain the firm-lock, whereas, where the head is within reach of an instrument of moderate curve, as Simpson's, or in cases where the head is well down in the pelvis, the advantages of the loose-lock are available. I know no objection to the racking of the blades in instruments of high curve, and I believe the movement is desirable in such forceps. And for these a modification of the lock of Dr. Bond would, I think, be entirely suitable.

### THE PRINCIPLE OF DIRECT TRACTION.

So far as I am aware, the first recognition of the departure from the proper line of traction in the use of the forceps with the pelvic curve was made by Levret in the modification of the curve of his instrument from higher to lower. Osiander, in the year 1799, recognized the necessity of applying tractile force in another direction than the line of the shanks. In his instructions for extracting the head, he advised that the operator place a folded towel over the lock of the instrument, and in the standing position, bear heavily downward upon this pad with one hand, while traction was made in the ordinary way with the other. Osiander sought here, by applying two forces—one downward and the other downward and forward—to cause, as a resultant of these, an actual extractive force in the direction of the pelvic canal.

In setting forth what is known to me as to instruments intended

to draw the head through the pelvis by a force applied in a direction perpendicular to the plane of the pelvis at which the progress of the head is opposed, perhaps I cannot follow a more natural course than to give an outline of my own efforts to construct a direct traction instrument. The first fact which struck my attention was that the pelvic curve of most forceps was not in correspondence with the actual curve of the pelvis. It seemed advisable, therefore, as a first step toward producing a direct traction instrument, that the second curve should be made to correspond with that of the pelvis. This being done by a proper shaping of the blades and shafts, it became evident that the line of traction fell far below the plane in which, in the ordinary methods of forming the instrument, the handles would lie. Accordingly these were depressed so as to form a decided angle with the shanks, so that the line of the handles should be parallel to a line drawn perpendicular to the axis of a cylinder of about the diameter of the head. held within the grasp of the forceps.

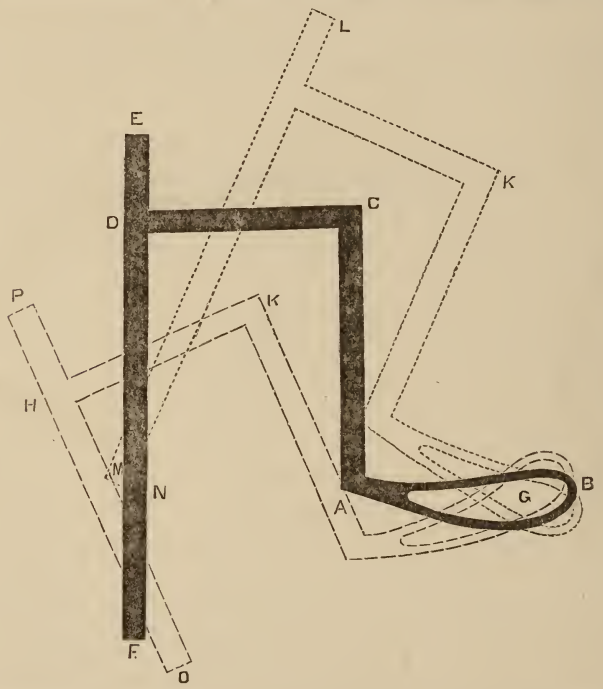



I may make clearer my meaning by means of this drawing, A B representing the blades and shanks curved as the pelvis. Now, in place of following the ordinary methods, and forming the handles in the direction of the dotted lines, C C, they were depressed to the point D, to such a degree that the plane of the handles, D C, should be parallel to a line perpendicular to the face of a cylinder, E E, held in the tractile grasp of the blade, A B.

I supposed that instruments so formed would possess three decided advantages: first, facility of introduction and easy coaptation to the head; second, the status of the handle relatively to the blades would cause the latter to give some idea of the line, perpendicular to the resisting circle of the pelvis, in which traction should be made; in other words, the direction in which the handles were pointing would indicate the direction in which traction on them should be effected; third, traction in the line of the handles would be perpendicular to the plane of resistance—that is, direct. And upon trial of instruments made after this plan upon a model, they held very well when the head was seized in a long or oblique diameter, and well also when applied over the sides of the head. In the latter position, however, the hold was only firm when traction was carefully made in the line of the handles. This could be done only by vigilantly guarding the ends of the handles near the lock from rising upward (toward the points of the blades) and by preventing a corresponding depression of the opposite ends.

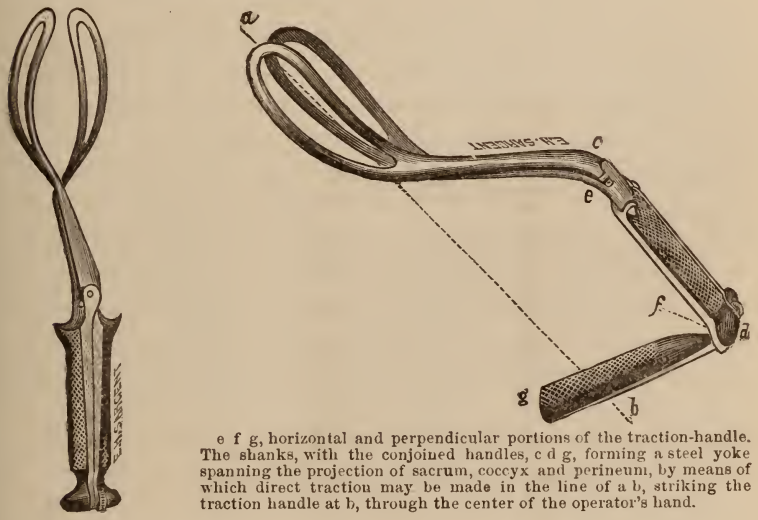
It will be seen by this model that traction made at any points on the handles in a direction parallel to the axes of the blades tends to draw these points into line with the point or place of resistance on the blades, and experience at once showed that unless this tendency was successfully resisted, there was a great liability of the clams, when the head was grasped over the ears, to slip off, as Chapman expressed it, "sideways." That is, the forceps yielding in the direction of the line of traction, slip off in a line about midway between a line representing the axis of the blades, and another perpendicular to that axis. This tendency to slip was so decided as to condemn the instrument. In fact, in two cases in practice it slipped over the head when low down, in the manner detailed, after successful delivery through the superior strait, although in the hands of expert obstetricians. It became necessary, therefore, to alter the instrument so as to obviate the tendency to slipping. The first plan that occurred to me was to extend the lower rim of the blades farther backward, as in the forceps of Johnson, Davis and others, in order that the parietal protuberance should present an obstacle to the slipping off of the instrument in the direction stated. Careful test of forceps, provided

with such a curve, demonstrated that the hold obtained by the widening of the blades was yet insecure. I then thought of pulling by a thong passed through the fenestræ imitating in this, as I believe, some of the older writers. This plan on the model gave quite satisfactory results, but practically it was not of much value, for in order to the successful use of the thong, it was necessary that it be pulled upon in a line farther back, than the perineum would admit of in the majority of cases. I had, a year ago, noticed the peculiar supplementary handle of the forceps of Dr. Hobbs, jutting downward from, and perpendicular to, the ordinary handles, and a trial of his instrument on the model, showed quite a firm hold. I began to conceive that this handle was of value for other reasons than that it presented an opportunity for powerful traction. It then occurred to me that having, as we




do, a connection between the handles and the blade by means of two stout steel rods, the shanks, it ought to be practicable to draw on the head in the desired direction. I pictured to myself the above diagram.

A B being the blades of my forceps, A C the shanks, and C D the handle. Now, if a bar were firmly attached to the extremity of the handle at D, extending perpendicular to C D to the points E and F, we should be able to make the following demonstration: Let G represent the point of resistance, and in our experiment, a pivotal point. Now, if traction be made at E, the tendency of the apparatus would be to assume the position indicated in the dashed lines H K A. On the contrary, if traction were made at F the apparatus would tend to move into the position of the dotted lines M L K. Now, therefore, as a force at E moves the handle C D in one direction, and a force at F moves it in a contrary direction, there must be some point between the points E and F at which the handle, C D, will move neither in the one nor the other direction, as the point N. *This point would be the point of direct traction.*




e f g, horizontal and perpendicular portions of the traction-handle. The shanks, with the conjoined handles, c d g, forming a steel yoke spanning the projection of sacrum, coccyx and perineum, by means of which direct traction may be made in the line of a b, striking the traction handle at b, through the center of the operator's hand.

BARTLETT'S DIRECT TRACTION FORCEPS.

I had, therefore, only to attach to my forceps, a handle like that of Dr. Hobbs, and of such length as to enable the hand to grasp it at the point of direct traction determined by trial, to perfect my instrument—to make it what I had proposed to myself in the beginning, a direct traction forceps. I had this

handle constructed so as to be instantly attached or removed, and in no wise to interfere with the manipulation of the handles. The practical question now was whether the new supplementary handle would successfully overcome the difficulty of slipping off sideways of the blades. Please to give your attention while I test the instrument on the model. You see, without the new handle, when traction is made in something of the old way, as in the ordinary forceps, the blades slip away from the head with a facility which is surprising; whereas, when the handle is applied, the tendency to rising upward and slipping of the blade is entirely overcome, and though having an unusually high curve, they hold with the tenacity of the straight forceps. In the use of these instruments, one acquires a tact which enables him to feel when the hold is insecure, or the reverse. When my forceps are applied without the new handle, the *feel* of the hold is suggestive of great insecurity; whereas, when the new handle is applied, the sensation imparted to the hand is that of an inflexible, unyielding grip.

Observe that the point at which it is necessary to apply the traction force in our illustration, varies with the portion of the surface of the blades at which the resistance actually exists. Thus, if the head be grasped by surfaces of the blade near the end, the point of direct traction rests farther below on the handle than when it is grasped nearer to the shanks of the instrument. Occasionally the head is seized by the lower rim of the forceps only, and in this case the point of traction falls lower down on the handle than if the points of resistance were on both rims. It will thus be seen that the point of direct traction varies on the traction handle an inch or more, but in practice it is thought that this will make no difference, provided that a point be chosen at which the traction is the lowest that might be necessary.

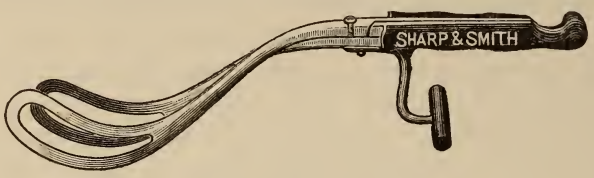
It is interesting in this connection to note that in practice the actual point of direct traction on the handle may be determined in any given case by trial. Thus; if a piece of tape, a foot in length, be looped on to the traction handle far toward its junction with the ordinary handles, and traction be made from its free extremity, it will be observed that the angles formed by the tape and the traction handle are not right angles, and that the obtuse angle faces that end of the handle farthest from the tape.

Whereas, if the thong be looped on far toward the other, free end of the handle, and traction be then made by it, the obtuse angle then formed faces in the contrary direction. And it will be found that the degree of deviation of the obtuse angle from a right angle, in either case, may be increased by carrying the tape yet farther toward that extremity of the handle to which it is then the nearest, and that on the contrary, the obtuse angle approaches more and more to a right angle according as the test cord is slipped along on the handle in the direction toward which the obtuse angle faces; so that presently we find it resting upon a point where the obtuseness of the angle has vanished and the tape and handle stand at right angles. *This is the exact point of direct traction for the resistance offered at the moment of trial.* It should be added that the determination of this point may be effected in less time than has been occupied in the recital of this account of the method of determining it.

In the use of this instrument it is sometimes desirable to bind the handles together, not only for the reasons which suggest this procedure in ordinary forceps, but that the whole instrument may be allowed to rotate with the head, if need be, in the loose grasp of the traction hand, free to turn on the admirable swivel formed by the joints of the forearm. Now, that compression may be completely under the control of the operator—instantly applied, regulated or removed—the following device has been adopted: The handles are bound loosely in the usual way and place, with a suitable thong of lace leather, including in the ligature the horizontal plate of the supplementary handle resting immediately beneath the ordinary handles. To apply and regulate compression, a suitable wedge of wood is adjusted under the thong *i. e.* between it and the traction handle plate, with the effect of tightening the ligature to any desired extent. To diminish compression, or to remove it entirely, the wedge is to be retracted, or withdrawn.

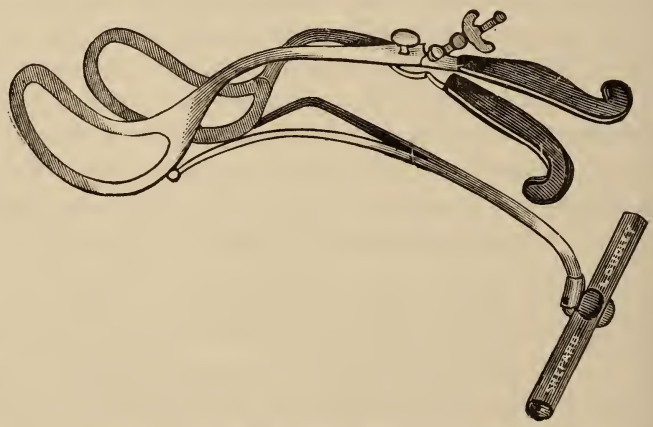
I should not omit to state that in the use of the forceps here described, more especially when the head is above the superior strait, it would be desirable, if not absolutely necessary, that the patient be in the English position, on the side. For the traction, the woman being on the back, would, in a high application, be so

nearly downward that it could not be effectively applied. As to the great majority of practitioners in this country, the application of the forceps with the patient on the side would be novel and awkward, it would seem better to apply them in the dorsal position, and then place the patient in the English attitude.




THE HOBBS FORCEPS.

I desire next to call your attention to two other direct traction instruments, both of which were constructed before the one which I have just described. The more recent of these is that of Dr. John O. Hobbs; the earlier, that of Dr. Tarnier, of Paris. Dr. Hobbs modeled the blades of his instrument, in their general shape, after those of R. W. Johnson and Tarnier; they have a pronounced perineal curve. To make his forceps more effective, he added the very ingenious handle, to which reference has been made. This handle—a device which, as I believe, will mark an era in the construction of the forceps—not only enables the operator to pull with ease and force, but it, as demonstrated above, by lowering the point of traction, tends to make it direct.



THE TARNIER FORCEPS.

I now call your particular attention to the peculiarities of Tarnier's forceps. The shafts and blades have the old perineal curve, and reach quite high into the pelvis; the handles are used as those of any other forceps, *except that they are not intended for extraction;* they are provided with a screw, by which they may be held closed upon the head. The distinguishing peculiarity of the instrument is this supplementary piece, by which traction is made. It is a properly shaped bar of steel, provided at one end with diverging branches intended to hook into the shank end of the blades, while the other end, curved downward, has attached to it a bar by which traction may be made with both hands. Dr. Tarnier, in the addition of the tongue or hook-piece to his forceps, had evidently despaired of utilizing the shanks as a means of traction. He used the rod with the intention of drawing it as directly backward as the perineum would permit; and remark particularly that the cross-bar is not attached to the traction tongue close to the handles, but that it is bent downward an inch (2.5 ctm.) or more before this attachment is made. The depression downward of the bar is not, as some suppose, simply to remove it to a convenient distance from the handles, but to give to the instrument the power of a direct tractor.

The blades of Tarnier's forceps are not intended to be held together by the hand, but by means of the screw. One object of this modification is to allow the handles and the entire forceps liberty of motion, so that the natural movements of rotation, etc., of the head may take place without that restraint which the hold of the hand on the handles might occasion. Dr. Tarnier illustrates how these movements of the head are imparted to the forceps-handles on a manikin, the pelvic cavity of which is provided with resilient rubber walls so that the head in passing through it undergoes the ordinary movements incident to the mechanism of labor. We have not at hand a manikin of suitable kind, but the capability of movement may be perfectly shown by passing the blades grasping a model head through any suitable compressing surfaces, the irregular faces of which, like the planes of the pelvis, invite adaptive changes in the "position" of the body passing. Thus, if one, while seated, grasp the blades of the Tarnier forceps, closed upon a model head, between his apposed legs just

below the knees, and draw upon the cross bar so as to cause the head to emerge between the thighs just above the knees, he will observe that the handles of the index forceps indicate the changes in rotation imposed on the head by the resilient walls offering it resistance. If the handles of my instrument in like manner be secured by a thong or elastic, and traction be made upon the traction handle by a loosely grasping hand, something of the same facility of movement is observed as in the original index forceps. I may here add, parenthetically, that I have taken the liberty to correct the translation of the words which Tarnier employed to designate his forceps, *Forceps à aiguille*, so that the idea embodied in the French may be retained in the English, the strictly literal rendering of the word *aiguille*, as usually translated, destroys its significance.

Though this forceps is complicated and awkward it is said to be readily applied and very efficient. It certainly holds admirably, and is a direct tractor. It would seem to me, however, in view of the manner in which the traction is made in my instrument, through the shanks, that there is no necessity for the hooked tractor of Tarnier.

It may and doubtless will be objected by some that there is no need of a powerful forceps—that there is power enough in any of the standard instruments to deliver, where delivery is possible. It is true that in the majority of cases, especially with the head low down, the ordinary style of forceps answers very well, but it is not to be denied that occasionally cases occur, and not very infrequently, in which the practitioner finds his strength exhausted, and feels the necessity of calling in assistance. At other times, the aid of the inexperienced, as of the nurse or husband must be invoked. Occasionally it happens that, through sheer exhaustion of the medical attendant, a failure to deliver occurs, and the perforator is brought into use. Any instrument which lessens the labor of forceps delivery, is of marked advantage to the obstetrican and the parturient, the more especially when the diminution of force required is effected by causing traction in the true line, and thus avoiding unnecessary pressure upon the tissues of the mother, and needless compression of the head of the child.

Recently these forceps were used in a case in which their efficiency was so strikingly shown, that I may briefly refer to it. Dr. F. Henrotin employed them in the delivery of a woman whom he had attended in four previous labors; in three of these, using the forceps, and on the other occasion turning, and in each instance experiencing great difficulty because of a narrowing of the conjugate, and a tilting forward of the womb, so that, as the woman sat, the abdominal parietes rested on the thighs. When called, at the recent confinement, Dr. Henrotin found that the woman had been in labor about twenty hours, and that the liquor amnii had been discharged fourteen hours. There was marked anteversion of the womb, and by introducing the hand, the head was felt, resting with its side above the pubic bones, and the vertex impinging against the promontory, the os being dilated to a diameter of two and one-half inches, and dilatable. Immediate recourse to the forceps was determined on. Dr. Henrotin introduced and adapted the blades readily, and delivered, with slight effort in less than fifteen minutes, to the surprise of himself and other physicians present.

DISCUSSION.

Dr. Miller had been greatly interested in the able paper of the essayist. The forceps which the author had invented he thought very ingenious, but he feared a little too complicated and powerful for ordinary use. There was such a thing as a forceps being endowed with too much force; there was a limit to the force which can be invoked, beyond which it was not safe to go. A man of ordinary strength possesses all the force that prudence will allow. He believed that every power of the obstetric forceps should be controlled by an intelligent operator, and any change in the instrument which tended to lessen the required degree of intelligence was not a safe departure. The speaker once heard Lee say, at the close of an hour's lecture on the obstetric forceps, that, in his opinion, there had been no real improvement of the instrument since the days of Chamberlen. While he could not accept this extreme view, he believed it would be unfortunate for the woman if the forceps ever became such a perfect machine as to require less intelligence on the part of the

operator in its use. Dr. Miller gave preference to a slight pelvic curve in the forceps. Above all, he thought it a matter of importance that the operator have a practical acquaintance with the particular instrument which he used. In conclusion, Dr. Miller said: The prudent operator will picture to his mind at all times the exact relations which exist between the head and pelvis and also the relations of his forceps to these parts. It was essential that his mind be occupied with these facts, and one objection which he raised to the instrument in point, was that the operator's attention was necessarily diverted from this by the manipulation of the complicated handles.

DR. ROLER said the paper had been an instructive one to him. Concerning the forceps which had been exhibited he feared it was endowed with too much power. In reality but little compression of the head was required in the great majority of cases. It was essential that the blades be applied exactly opposite each other, and when so applied the instrument could not slip. With regard to direct traction he thought that too much stress was laid upon it; we have an exaggerated idea of the pelvic curve. By directing the traction backward, with the hand bearing downward upon the instrument, as recommended by Osiander, and recently by Byford, one could exercise traction in the proper direction by means of the ordinary forceps.

DR. FITCH admired the ingenuity of the essayist as shown in his new forceps, but he thought them too complicated. The operator must at all times be conscious of the degree of pressure which he is exercising as he cannot be with the instrument in question. Notwithstanding the stress which had been laid upon the racking movement of the blades in a loose lock, he preferred the Siebold lock. Dr. Fitch called attention to the importance of one feature which is almost universally omitted in forceps, viz: the turning out of the tips of the blades, which enabled the operator to pass the instrument through a partially opened os with the greatest ease.

DR. JENKS thought the paper a very complete exposé of the mechanics of the different parts of the obstetric forceps. As a matter of history he desired to say that it was now generally admitted that Pugh added the pelvic curve to the forceps, fourteen years

before it was mentioned by Smellie. The speaker dissented from Dr. Roler in that he had seen the forceps slip even when the blades were perfectly applied.

Dr. Nelson said it was of the greatest importance that the compression of the head be intermittent for the safety of the fœtus, and for the integrity of the soft parts of both the fœtus and woman. He had known of one case of extensive sloughing of the scalp from too continuous traction, and two instances of destruction of the fœtus by pinching a loop of the umbilical cord, results that might have been avoided had the traction been intermittent.

Dr. Merriman said that one pair of forceps was not sufficient for all cases. On the whole he preferred Elliott's instrument, though he had known it to slip once or twice. As a rule a great curve of the instrument is not required, even in the high operation; the perineum can be pushed back so far as to permit traction to be made in the proper direction even with a nearly straight instrument. The speaker alluded to the very uncomfortable and awkward position which the operator was obliged to assume in making traction downward and away from his body in the high operation. Dr. Merriman also said there were cases in which forceps without handles were serviceable.

Dr. Sawyer said that the uncomfortable position of the operator, spoken of by Dr. Merriman, could be obviated and many other advantages gained by placing the woman upon the side; he had adopted this position during the past two years and was now convinced of its superiority. It is a significant fact that the French and Americans who are confined to the back position feel the need of the perineal curve in the forceps, while the English, who place the woman upon the side, often use the straight forceps. As confirming the truth of what Prof. Miller had said, that an operator uses that instrument best with which he is the best acquainted, it was interesting to recall the very important results in Dr. Hamilton's practice, in Falkirk. This gentleman uses only the Zeigler straight forceps, and, what is strangest of all, he applies the instrument in the antero-posterior diameter of the superior strait.

Dr. Earle said there were undoubtedly cases where extrem

force was required to complete delivery. He spoke of one case where the combined strength of both Dr. Fitch and himself was called in requisition.

In closing the discussion, Dr. BARTLETT said that the objection that the instrument was complicated was rather apparent than real. While in simple forceps delivery he would not select such an instrument, in a difficult case, he believed it would be more easy of application and more efficient in action than the ordinary forceps. Nothing but prolonged experience would give that *tactus eruditus* which should determine just what amount of downward pressure, and what measure of traction would produce a resultant force sufficient to counteract the errors of construction of any given instrument. Whereas the mode of using the forceps he presented, was readily understood, and it being properly applied, and the hand placed over the proper point of the traction handle, a novice would hardly pull in the wrong direction.

Imperfect description on his part had probably led to a misapprehension as to the mode and measure of compression to be used with the instrument. He called attention to the fact that the handles were so arranged that if the operator preferred, he might make compression with his hand as in the ordinary forceps. The thong and wedge attachment were devised with the express intention of placing the compression completely under the control of the operator; by their use the compressing force could be applied, regulated or removed in an instant.

It had been said that it was essential in order to the firm hold of the forceps that the blades be applied the one exactly opposite to the other. So far as the instruments with a rigid lock were concerned, the statement was true, but it required only a glance at the model head held in the racking blades of the Ziegler forceps to show that the remark did not apply to instruments of that class.

In regard to the pelvic curve, there should be no discrepancy of opinion, as it might be said to be a fixed quantity, and no less, the speaker ventured to say, than that of the forceps he recommended.

It had been stated that higher curved instruments were not needed because the perineum may be so far pushed back toward

the coccyx as to render possible the employment of ordinary instruments. He would call attention to the fact that in this procedure the forceps acted as a powerful lever, and that, while the blades might retain their grasp on the head, in such a manœuvre, and the perineum be forced backward, the contrary might happen, namely: the perineum might *not* yield, and the blades might be forced from off the head.

Dr. Bartlett called attention to the fact that in the use of the straight forceps antero-posteriorly, the blade of the instrument toward the sacrum while holding the head in its grasp, presented a curve very nearly corresponding to that of the parturient canal.

Referring to the trouble experienced in introducing the second blade, which Dr. Fitch had mentioned, Dr. Bartlett stated that in the ordinary dorsal position for forceps delivery, the thigh of the mother sometimes interfered with the free movement of the handle of the instrument laterally. In such cases he had the thigh raised to a right angle with the body, the assistant resting the leg over his shoulder.

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## Article II.

### The Early Treatment of Burns and Scalds.

E. Fletcher Ingals, M.D., Lecturer on Physical Diagnosis and Diseases of the Chest, Rush Medical College. Clinical Professor of Diseases of the Throat and Chest, Woman's Medical College.

On the 24th of October last, I was summoned by telephone to see Mr. L—— A——, a vigorous man forty-nine years of age, who had just met with a severe accident.

I met the patient when he was brought home, about three-quarters of an hour after having been severely scalded.

In passing through the factory he had stepped on the cover of a catch-basin, which received the exhaust steam from the boiler; the cover suddenly gave way, and he was percipitated into the boiling water beneath, which covered the feet and legs nearly to the knees. The legs must have remained in the water for several seconds, and the patient thought they were immersed a second time before he could extricate himself from his painful

position. The man's cries brought help, and he was carried into the office, the shoes removed, and cotton dressings saturated in carron oil, applied to the burns.

While the patient was being brought into his house, he was taken with a severe rigor, for which a large dose of whisky was administered. I examined the legs and found them burned from about an inch above the soles of the feet, to within three or four inches of the knees, making a scald on each leg a foot in length, and encircling the entire member. The tissues were burned most deeply just above the ankle joint.

The rigor continued notwithstanding the whisky. I at once ordered a tub of cold water, in which the patient's feet and legs were immersed with the effect of instantly relieving the pain, and at once overcoming the chill. The water was used just as drawn from the hydrant, and stood at 67° F. I found that if the temperature of the water rose only a few degrees, the burning pain would return, therefore I ordered that the temperature be kept at 67°, either by means of pieces of ice or by changing the water.

I gave no more whisky and no anodyne as none was needed. I directed the patient to keep the legs constantly in the water for six or seven hours, and longer if necessary, to prevent the return of pain, and that the temperature should be gradually increased but always kept low enough to prevent smarting.

When I returned in the evening, I found the patient perfectly comfortable, with his feet still in the water. He had removed them once or twice for a few minutes, but as soon as smarting returned they had been again immersed.

I now wrapped the legs in oiled cotton and put the patient in bed, but left directions for him to again put the feet in water if pain returned. The next morning, I found that the patient had remained about an hour in bed, when it became necessary to put the feet again in water. Subsequently the cold water treatment was continued with only slight intermissions until it had been used altogether for seventy-four hours, at which time it became unnecessary as the pain did not return. The temperature of the water had been gradually increased until during the latter part f the treatment, when it stood at nearly 100°.

In instituting this treatment, I was guided by personal experience in the case of a small but deep burn, and by the well-known fact that cold water will relieve the pain of burns and that such injuries if of any considerable extent are very likely to prove fatal in consequence of constitutional disturbance, caused by the pain and inflammation.

The question in my own mind as to the injurious effects of such long immersion in cold water, was answered by reference to the experience of Captain Webb, who spent eighteen hours in the English Channel without apparent detriment to his health.

Quite an extensive experience in the care of burns, in the hospital, after the fire in 1871 and the subsequent care of several scalds, convinced me long ago that the proper course to follow in recent burns or scalds was the one which I pursued in this case. I have frequently suggested the method to other physicians, but have always been met by reference to the well-known dressings of lead, carron oil, bismuth, etc., etc., all of which have long been found useful, but none of which will stop the pain, or so limit the inflammation as the popular and easily accessible remedy, which was used in this case.

When the use of cold water became unnecessary in this case, the legs were dressed with white lead and cotton, which was kept on until suppuration occurred; subsequently the separation of sloughs was favored by poultices and in sixteen or seventeen days from the date of the injury the dead skin had all been removed and the ulcers presented a clean and healthy appearance.

I found that the skin had been burned in varying degrees from near the sole of the foot to the upper part of the calf of the leg; in some places only the outer layer having been destroyed, while just above the ankle on either leg, a strip of skin, varying from two and one-half to five inches in width, had been destroyed throughout its entire thickness.

The effects of the cold water were now very marked in the evident limitation of the inflammation. In many places from one-fourth to three-fourths of the entire thickness of the true skin had been destroyed and the lower layers remained intact. In still other places, nearly the whole thickness of the skin had been destroyed, leaving here and there, small points of the deeper

layers, one or two lines in diameter. I have never seen such small portions of skin saved by any of the ordinary methods of treatment, under which, it seems to me, the tendency of inflammation to involve the entire thickness of the skin, would certainly have been fatal to these. From all these points new skin was rapidly formed, so that in a short time the greater portion of the sores was healed.

The only unfavorable symptoms during this time were a few intermittent chills and fever, which were readily checked by quinine; nervousness, which prevented good sleep, for the first two weeks, and occasional, irregular pains in different parts of the legs. However, the patient never lost a meal and constantly improved in flesh throughout his confinement to the house.

About the end of the fourth week several small grafts of skin were inserted in the ulcers and Martin's rubber bandages applied. Skin-grafting was subseqently practiced several times, but only five or six of the points grew; caustics were used occasionally toward the latter part of the treatment to cut down exuberant granulations which were not wholly controlled by the bandage. The bandage was kept on the legs until recovery was complete and is still worn for support during the day. The patient began to walk about in six or seven weeks and was out of the house December 27th and the case was completed a few days later.

From my experience with this and other methods of treating scalds and burns, I feel confident that the cold water dressing is the best in all cases where it can be applied soon after the injury has been received and probably it would be best in all cases if applied any time after the pain is felt, and continued constantly, with gradual elevation of the temperature, until it ceases.

This treatment will stop the pain and prevent the constitutional disturbance which it would occasion, thus enabling the physician to save the lives of many patients, who would otherwise die of shock.

It will limit the resulting inflammation to the minimum degree and thus preserve the greatest possible amount of tissue.

If the temperature of the water is gradually elevated as the burning pain disappears, and the treatment is discontinued when this has been accomplished, no evil results need be feared, but

the physician may have the satisfaction of giving his patient the greatest possible relief, at the same time preventing further destruction of tissue and probably restoring much that has already been injured.

The treatment must be continuous in order to be productive of the best results; probably it would be hurtful in some cases if used intermittently.

The laity should be instructed, in cases of burns or scalds from burning clothing, hot water, steam, etc., to immediately immerse the parts in water cold enough to relieve the pain and to keep them in that condition until the smarting or burning would not recur and until a physician could be summoned.

If this plan were adopted there is good reason to hope that many of the extensive, but superficial burns, which usually prove fatal, might be transformed into slight injuries, and many of the ugly deformities which originate in these accidents might be prevented.

188 Clark St., Chicago.

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## Article III.

Hour-Glass Contraction Previous to the Delivery of the Child. Paper read before the Northwestern Wisconsin Medical Society in December, 1879. By J. R. Moore, M.D., Member of Committee on Obstetrics, New London, Wis.

Nov. 1, 1879.—Called at eight o'clock, a. m. to see Mrs M——, in confinement. Nativity, American; in stature above the medium size and very muscular; age, forty years and pregnant with fourth child.

Had been sick the greater part of the night, and first stage terminated about six o'clock, a. m. with a very abundant discharge of liquor amnii, after which pains became regular and severe at intervals of about ten minutes.

On making an examination, I found the os well dilated, soft and flabby, and the head, which was presenting, seemed determined to force its way in front of and to the right of the symphy-

sis pubis (right iliac region). The abdominal walls were flabby, owing to the loss of tonicity from the large abundance of water so recently discharged, and uterine contractions powerful.

My first impression was, that with a few pains I would be able to dislodge the head and bring it within the axis of the superior strait. This I set myself about, and, between pains, I could bring it so that it seemed that it would engage itself within the brim of the pelvis; but, directly as the pain returned, it would return to its former position.

And for three long hours, I thus, with my fingers, tried to change the position of the head, but in vain.

The pains now had become so severe that during them I was obliged to allow the inhalation of chloroform.

Externally, the outlines of the head could be distinctly felt in the right iliac region and even slight pressure occasioned great pain. Waiting till eleven o'clock, three hours from the time I first saw her, and seeing no advancement whatever, I made another attempt with the vectis to change the position of the head, which I could do between pains, as before, but directly as pain returned, back it would go.

Of course, every advantage was taken of position and every external appliance imaginable made use of, such as bandages, counter-pressure with the hands over the tumor, etc., but all in vain; and at two o'clock, p. m., eight hours from the termination of the first stage, there being no change whatever, only a more exhausted condition of the patient, I called in Dr. P. Dickinson, who lived near by, in consultation.

After making an examination, the doctor concluded (as I had thought) that time would overcome the evil and force the head within the brim of the pelvis. So, with a determination to succeed, he went to work as I had done for so long a time; and thus he worked for two hours, with the same result. At the end of which time the patient showed great signs of exhaustion, with a quick, sharp pulse, lips dry and parched, tenderness increasing rapidly on pressure over abdomen, muttering delirium when slightly under the influence of chloroform and pains still frequent and very hard. Making an examination again, and finding no change in the presenting part, I was now firm in the belief that

some other alternative must be resorted to, and that at once or our patient would die before delivery could be effected. In this the doctor agreed with me, and we concluded to try and grasp the head between the blades of Hodges' long forceps and see if we could not effect a delivery by that means. But with the presentation *occipito-iliac* this was an utter impossibility.

Failing in this, which of the other two alternatives must be resorted to, viz, craniotomy or version? The condition of the patient seemed to favor the former method, while the general impression would be to turn. And this we fortunately concluded to do. So, placing the patient in the proper position, viz, on her back, and allowing the free inhalation of chloroform, I proceeded to find the feet. The pelvis was roomy and the soft parts offered but little resistance, also the uterus until I passed the head. But here I found as great a constriction as is possible to find in hour-glass contraction after delivery of the child—the secret of the whole mischief.

Below the constriction there seemed to be but little muscular contraction, but at and above, it was indeed powerful. I at once began to dilate this constriction, but it was so great that it was with difficulty that I could pass the end of my index finger under it. You can rest assured that it was no simple matter to dilate it sufficiently to admit the passage of the hand. But this I at last accomplished, secured a foot, and, after some little difficulty, succeeded in turning and delivering a living boy, weighing eight and a half pounds, being smaller than any of her children before it. After delivery of the child, hour-glass contractions again followed, which we were obliged to overcome to remove the placenta. But this was not difficult, as there was no unnatural attachment between it and the womb. It was attached near the fundus.

This is the first instance where I have known this form of contraction to exist before the delivery of the child, and indeed I can find nothing in obstetrical literature which bears directly upon this point. Cazeaux, Meigs, Velpeau, Byford and others dwell at length upon *irregular* contraction, etc., but say nothing of this form, which may exist, as is here proven, to such extent as to require surgical interference to effect a delivery.

And is it not possible that we may have this difficulty to deal with many times when we are not aware of its true nature? As in this case, if we had resorted to any other method of procedure, as craniotomy, or the use of the instruments if the head could have been grasped, we might have met with great difficulty in removing the body of the child from above the constriction. But if it had been accomplished, we would never have been the wiser as to the true cause for surgical interference.

But why not have hour-glass contraction *before*, as well as *after* the delivery of the child, if there is an opportunity for it? And what I mean by an opportunity is this, viz., suddenly changing the womb from a *highly distended* to an *empty* condition, or in other words, from a condition where the walls are extremely tense, to one of flaccidity, as in this case, when the liquor amnii was discharged, as there was a superabundance of it. I was not present at the time, but the attendants declared that there was no less than a pailful.

I am firm in the belief that, without this sudden change in the condition of the womb, this form of contraction will not manifest itself, having no faith in the theory that any attachment of the placenta can exert any influence whatever in that direction.

But let the cause be what it may, we can only theorize as to that. But we know that it may give rise to a very unpleasant state of affairs.

And ought we not to look carefully for this obstacle when surgical interference seems necessary, and try to overcome it before resorting to a more hazardous undertaking?

NEW LONDON, WIS., Jan. 30, 1880.

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## ARTICLE IV.

### ON THE MECHANICAL TREATMENT OF POTTS' DISEASE. A New Apparatus by Mr. Gemrig, of Philadelphia. By Dr. GEO. F. SOUWERS, Philadelphia.

There is, perhaps, in the wide domain of surgery no disease the treatment of which has of late years attracted so much attention

as caries of the spinal vertebræ, or, to employ the name commonly given the trouble, Potts' disease of the spine. Blisters, cauteries and various bandages and devices have rapidly followed each other; each has had its day, served its purpose, and been relegated to a greater or less degree of oblivion. It may not be uninteresting to the general practitioner, and to those not in the neighborhood of the large cities and hospitals, to consider some of the different forms of apparatus, etc., that have been and are still used.

In the early stage of the disease, before deformity has become particularly noticeable, the best form of apparatus, probably, is the bed. The patient should be placed in the recumbent position on a strong hair mattress, from which a U-shaped piece has been removed, for the easier introduction of a bed-pan; this position should be maintained until either the patient is fairly recovered, or until it becomes evident that more decided measures are necessary for his relief. As to the employment of cauteries, etc., in this stage we shall say nothing, this paper having only to do with the purely mechanical treatment. Probably the simplest and cheapest form of apparatus—when the stage for mechanical interference arrives—is the plaster jacket, so much employed by Dr. Sayre, of New York; it presents the advantages of support to the yielding column and readiness of application. The method of making and applying this jacket is as follows: Into the meshes of coarse crinoline or Swiss muslin, dry plaster of Paris is rubbed, the crinoline being in strips about two or three inches in width; this is made into an ordinary roller bandage, which should be put away in an air tight box till needed.

When it is desired to use the bandage it is dipped *end* first into cold water and applied as follows: A thin close fitting gauze sleeveless shirt, having loops to tie over the shoulders, is placed on the patient, the bandage is then carried round the body, each lap covering one half the previous turn; over the stomach a pad is placed, which can be drawn out before the plaster has thoroughly set; over the laps of the bandage wet plaster is rubbed, and the whole is then allowed to dry.

The patient while being bandaged should be suspended, either

by bands passing under the axilla, or by a halter catching the chin and occiput. A very convenient apparatus for this purpose is here figured (plate I); or a hook having been driven into the ceiling answers the same purpose. In an institution with which I am connected, a beam of wood is placed between the ends of two book-cases, which occupy a corner, and from the beam an ordinary block and tackle is suspended. For the purpose of securing greater supporting power, narrow strips of tin are placed around the body at intervals of two or three inches, after two or three layers of the bandage have been applied. The chief objection to the plaster bandage is its liability to crack, and in places to chip off; this should of course be watched and remedied as soon as it happens. Further, ablution is not as readily performed as is desirable, and this of course is objectionable; though taking the bandage as a whole, its good far outweighs its evil features. Without any discomfort it may be worn for months, if so desired.

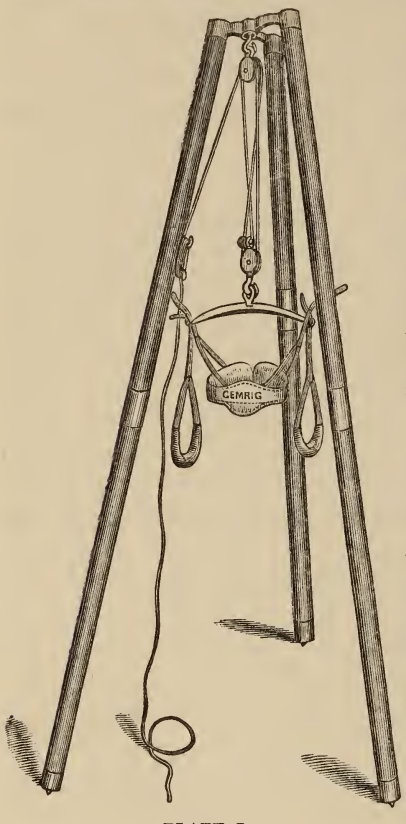


PLATE I.

Another form of this bandage is the silicate dressing, the principles of which are the same, to wit, a strong, supporting, unyielding box, which shall act as it were as an external spinal column. Stiff binder's board, wet and moulded to fit the body, or strong felting, will also answer a good purpose.

In those cases where there is but a slight tendency to spinal curvature, a jacket such as is here shown (plate II) answers a

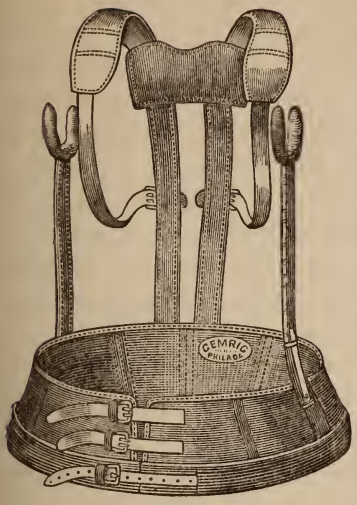


PLATE II.

good purpose. The lower or abdominal portion of the apparatus being elastic, whilst the thoracic portion laces up. The weight of the head and shoulders is transferred by two crutch heads, which fit into the axilla through a steel straight spring to the hips. In cases of lateral curvature, a somewhat similar apparatus, to which a pad has been added, as figured below (plate III), may be employed. As a support in posterior curvature, the apparatus here depicted has some advantages. A pelvic band supports two lateral crutches, which reach up to the axilla. Posteriorly, an upright fitted with an axillary strap extends up on either side of the spinal column.

There are, of course, many other and varied forms of apparatus, but it is a question whether the instrument lately contrived by Mr. Gemrig, of Philadelphia, and described below, does not present greater advantages than any now in use. This apparatus, which has been very successfully employed in the Pennsylvania Hospital, in Philadelphia, and the manner of making it, may be described as follows: An accurate mould of the trunk is taken by means of the plaster jacket, the patient of course being suspended; before becoming entirely set the jacket is cut open in front, in the middle line. Into the mould thus obtained a quantity of mixed plaster is poured, and this on hardening presents a perfect cast of the suspended body. A

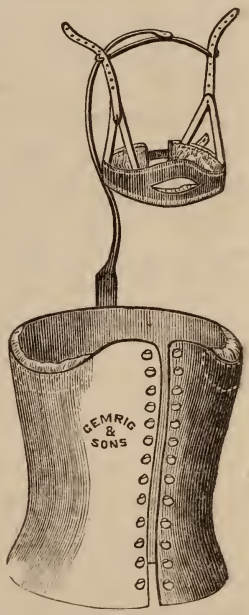


PLATE III.

piece of thick, half tanned leather, thoroughly saturated, is now applied to the cast thus obtained, and having been accurately molded into position, is allowed to dry. Upon examination after drying, the cast is found to be so accurate that even the intercostal and intermuscular spaces are clearly shown in the leather. The dried jacket is now lined with fine chamois skin, cushioned at the axillary edges, and fenestræ cut in it, thus providing for ventilation, which the plaster jacket, with all its advantages, does not possess. Eyelets and lacing cords are now fitted in front, and the apparatus is complete. If desirable, the apparatus may be removed at night, the mattress then acting as the spinal support. To this apparatus Dr. Sayre's "jury-mast" may be added; this supports the head in an erect position, and the spine is relieved of superincumbent weight by a rod reaching above the back of the head, and from which supporting bands extend beneath both occiput and lower jaw.

This jacket is not expensive, and when the plaster jacket has been applied, a leather jacket can readily be fashioned from it. Its weight is almost nil comparatively. I have before me a jacket made for a boy fourteen years of age, and worn by him with great comfort for over six weeks, the weight of which is eighteen ounces. In this case fenestræ were cut in the jacket, to allow for the prominences of the anterior superior spinous processes of the ilium. In those cases in which extra support is required, narrow bands of steel may be placed on the back and sides of the jacket; these were used in the case above mentioned. The apparatus will stand a large amount of ill-usage and not be broken or bent out of position. The jacket can readily be removed by simply unlacing the front, thus providing for ablution etc.

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## ARTICLE V.

### ON THE VALUE OF ERGOT IN THE TREATMENT OF PNEUMONIA.

By WILLIAM MEACHER, M.D., Portage, Wis.

About a year ago Dr. O. D. Colman, of Pardeeville, Wis., told me that he had used ergot in pneumonia with very gratifying

results. He said that about six months before that, it occurred to him to try ergot in pneumonia. He had then used it in five or six cases, and in every case it seemed to cut the disease short by checking the extravasation of blood, so that there was no consolidation, or hepatization. I was greatly impressed with the idea at the time, and urged Dr. Colman to publish an article on the subject, but he neglected to do so. Since then the subject has been mentioned in several of the medical journals. But I cannot forbear giving my own experience with ergot in inflammation of the lungs. I have treated five or six cases, and Dr. Colman tells me he has treated fifteen or twenty with it. A history of my last case will serve to illustrate my experience. I copy from my case-book:

Was called January 13, 1880, to see Charley S., aged fifteen years; found he had been attacked the day before with headache and chills; he had high fever, severe pain in right side of chest, and cough; pulse 120, temperature 103°; prescribed Squibb's fl. ext. of ergot, five drops every three hours, and Dover's powders to relieve pain.

January 14th.—Less pain to-day, but high fever; pulse 110, temperature 104°; a little rusty expectoration, which commenced last night; nearly the whole of the right lung seems to be inflamed; the respiratory murmur is *harsh* over most of the lung. Continued treatment.

January 15th.—Pulse 100, temperature 103°; less thirst and less pain to-day; rusty expectoration almost stopped; not much cough. Treatment the same.

January 16th.—To-day there was an attack of fever which seems to be of a malarial character. I found him with his pulse 110, temperature 104¾°. The lung no worse, apparently, and the rusty expectoration stopped. Prescribed quinia.

January 17th.—Fever came on again to-day at the same time as yesterday, showing it to be decidedly of a malarial character. Some mucopurulent expectoration; respiratory murmur heard all over the lung, with some coarse râles; pulse 100, temperature 103°. Continued quinia, but stopped the ergot.

January 18th.—To-day the temperature only reached 102°,

pulse 90; very little cough, or trouble of any kind with the lung.

January 19th.—Patient got up to-day, and I did not see him again.

Now, here was a case that at the outset had all the symptoms of a bad case of inflammation of the lungs, but it seemed to be cut short by the ergot. There was very little extravasation of blood, and convalescence was very rapid, notwithstanding the malarial complication. Had it not been for the ergot in this case, I am satisfied that there would have been a good deal of extravasation and consequent hepatization, which most likely would have been serious and very tedious. Rapid convalescence has been the rule in the cases which I have treated with this drug. This has also been Dr. Colman's experience. Of course if I did not see the patient until hepatization had taken place, I should not think it worth while, then, to administer ergot, because the mischief, it is so potent to prevent, would already be done, unless extravasation was apparently still going on in some part of the lungs.

Although we do not know much about the cause of pneumonia, we know very well what the pathological condition is, and we know that pneumonia (I am speaking of it as it commonly occurs and wish to be so understood throughout this article), is serious or not, generally, in proportion to the amount of extravasation and consolidation. In pneumonia *something* affects the capillary vessels so that the blood leaks through their walls; this is how the mischief is done. Now, from what we know of the physiological action of ergot, its action on the unstriped muscular fiber and consequently on the walls of the capillaries, it is just the agent we should look to for the purpose of preventing this leakage.

I have no doubt that ergot will prove to be a most powerful remedy in the treatment of inflammation of the lungs, and enable the physician to render his patients, with this disease, real benefit by assisting nature, instead of hindering and embarrassing her in her efforts, as has been done to such a fearful extent in the past, by such drugs as veratrum viride, and other depressing agents.

# Clinical Reports.

## NOTES FROM PRIVATE PRACTICE.

### ARTICLE VI.

*Anomalous Origin of the Descendens Noni.*

In a recent dissection of the triangles of the neck, I met with an anomalous origin of the descendens noni, which may prove interesting to anatomists. In the ordinary text books the statement is made that the descendens noni is given off from the ninth or hypoglossal nerve, and joins just below the middle of the neck, to form a loop with the branches from the second and third cervical nerves, known as the communicans noni, lying upon the carotid sheath or occasionally within it. This being the rule, the case in question presents a wide variation from it. On opening the carotid sheath, I found a nerve corresponding to the descendens noni as above described, but on tracing it carefully upward found that it became intimately blended with the pneumogastric nerve, and could not be traced farther without separation of the fibers of the latter. It lay upon the internal jugular vein, crossing it obliquely, and piercing the carotid sheath in its lower third, to be distributed to the muscles of the anterior region of the neck, *i. e.*, the depressors of the os hyoides. The communicating branches from the second and third cervical, ordinarily known as the communicans noni, were absent.

As far as I have been able to investigate, there are no cases recorded, which are precisely similar to the above. Heule describes this nerve, as "nervus cervicalis descendens," which is composed of the "ramus descendens" from the hypoglossal, and branches from the second or a loop between the second and

third cervical nerves, which correspond to the communicans noni of Gray and others.

Höll has demonstrated that the branch which apparently proceeds from the hypoglossal, is composed of fibers ultimately derived from the first or second cervical nerves. In some of the old text-books, there is a statement that the ramus descendens, or portion from the hypoglossal really takes its origin in the "ganglioform plexus of the vagus," which corresponds to the "ganglion inferius," instead of the ninth. This variety, Heule states, is more correctly described, according to C. Krause, as the passage of the "ramus descendens" into the neurilemma of the vagus, whence comes the appearance as if it took its origin from the same, adding, however, the statement that cases may happen in which the ramus descendens from the ninth is entirely absent, and in which the branches to the depressors of the os hyoides are derived directly from the par vagum; quoting as authorities Pye Smith, Howse and Davies Colley. (Guy's Hospital Rep. III, Series XVI, 161). Luschka states that the descendens noni, usually contains no filaments from the hypoglossal, but is a branch from the first and second cervical nerves temporarily associated with the ninth. This would agree with the circumstance that in some animals those muscles which are supplied by the branches of the descendens noni in the human subject, receive their nervous supply from the cervical plexus.

In a case of Turner's (Journal of Anatomy VI, 102), the ramus descendens was derived from the vagus and afterward sent a portion of its fibers back again to the trunk of that nerve.

The case that I have above described adds another to the instances of anomalous origin which have been recorded, and appears to differ from them all in the fact of the absence of the communicans noni. The ultimate origin may have been the same as in those examples, in view of the communications which exist between the hypoglossal, vagus and superior cervical nerves, at the "plexus ganglioformis," which is merely a spreading out of the fibers of the vagus by the interposition of adipose connective tissue, this arrangement giving rise to a ganglioform enlargement commonly termed the "ganglion of the trunk," or "ganglion inferius" of the vagus.

It was impossible to dissect out of this structure with its filaments of communication with any degree of accuracy, on account of the large amount of adipose tissue surrounding the part, and the exceedingly poor state of preservation of the subject.

G. FRANK LYDSTON, M.D.
CHARITY HOSPITAL, NEW YORK.

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## ARTICLE VII.

*Report of Case.*

May 14th, 1879, called to see Mrs. H. in labor with her fifth child. Confinement was expected about April 15th, at which time slight pain was experienced. Labor commenced several hours before a medical attendant was summoned. Patient had had pain every night for a week. Pulse, 102; temperature, 99°. Pain infrequent and very weak and the patient very much exhausted.

On examination found a body two inches in diameter projecting an inch and a half from the vulva. The finger, passed behind and in front of the body, determined with difficulty that there was no passage beyond it, demonstrating that it was the cervix uteri. The projecting portion was purple, and the os scarcely visible. The finger, when passed, gave a sensation as though it were being forced through clots of blood, and could not reach the presenting part, which the previous attempt had determined to be the head. There was no appearance of cancerous or other disease.

On inquiry, found that the patient had first noticed something wrong during the first month of pregnancy, when she felt something come down between the labia while at stool, which she replaced herself. Since that time it always came down if she strained at stool. Had consulted a neighboring physician without relief.

Being unable to replace the womb, I scarified it and applied warm fomentations, and attempted by various means (without ergot) to increase the uterine contraction. Failing in this, I sent for assistance, and when the patient was thoroughly anæsthetized applied the forceps. The bleeding from the cervix had so far

relaxed the organ as to make this only moderately difficult. The child was delivered safely and easily, with apparently no injury to the mother except an expected laceration of the cervix, about one inch in length. The part was then returned within the body after the removal of the secundines.

May 15.—Patient doing well. Ordered that the vagina should be syringed out twice daily with dilute carbolic acid.

May 16.—Patient suffering much from pelvic pain. Tenderness of hypogastric region. Pulse, 120; temperature, 102°. Ordered opiate and continued injections.

From this time to June 16th the patient's general condition improved, though a tumor of considerable magnitude formed in the left iliac fossa. She then became impatient and put herself under the care of an "Indian Woman" before my next visit on the 23d. The "woman" spent the day in brewing two vile mixtures to be given in teacupful doses. One seemed to be intended to act on the uterus (which she supposed the tumor to be). The other produced violent catharsis.

On the evening of the 24th, at the urgent solicitation of a neighbor, I visited the patient again. Pulse almost undistinguishable; skin cold; fæces passed involuntarily every half hour. Tumor on steady pressure breaking up into smaller ones, and apparently partly formed by gas and fluids held back by the pressure on the intestine of the swelling in the iliac region.

Injected tr. opium in starch water, and gave brandy and ammonia liberally. The patient gradually gained strength, but was confined to the bed until late in August. The tumor was lanced above Poupart's ligament on July 10th, and opened of itself below that ligament, later in the month. The treatment is not given in full because the poverty of the family made food and the promotion of its assimilation the most essential medication.

Dec. 9th.—Patient consulted me as to a hernia formed in the site of the opening below Pouparte's ligament, but is otherwise in excellent health. At the last examination the cervix uteri was natural in size, but slightly deformed by the cicatrix of the laceration mentioned above. Menstruation normal.

WEST DE PERE, Wisconsin. DR. H. H. HURD.

# Domestic Correspondence.

## ARTICLE VIII.

## NEW YORK LETTER.

*Editors* CHICAGO MEDICAL JOURNAL AND EXAMINER:

The winter courses at the medical colleges are coming to an end, and with them the most important of the clinics stop. Chief among these clinics is that conducted by Professor James R. Wood, M.D., LL.D., in the amphitheater at Bellevue Hospital. "Jimmy Wood's Saturday clinics," are as familiar to the students and the profession here as Flint's Practice. They form a historical feature, indeed, and deserve a little description. The amphitheater at Bellevue Hospital will hold over a thousand persons, and every Saturday at half-past one it is crowded to its full extent. The bill of fare has been advertised previously on the college bulletin-boards, and it always includes a capital operation, often two or three of them. At the appointed hour Prof. Wood walks in. He is a little man with a very erect gait, a ruddy complexion, gray hair and moustache, and keen dark eyes. He dresses with the greatest care; his broadcloth coat, lavender trowsers, white vest and tie, and a button-hole bouquet are inseparable from his appearance in the amphitheater. "Jimmy" Wood, as he is endearingly called, is not a brilliant lecturer. His flow of words is interspersed with aphasic stops, and his voice is not a powerful one, still he gives a good many useful hints to the students, and no one can leave a course without feeling deeply the importance of preserving the periosteum. But it is as an operator that the Professor shines, and justly so. There is no surgeon in the city who knows better what to do, or whose knife goes so unerringly to the right spot. He used to be one of the

"lightning operators," removing thighs, et cetera, in eleven seconds. He operates in this style now occasionally, just to show the "boys" how it is done. When Mr. Callender, the English surgeon, was here last winter, Dr. Wood invited him to amputate a thigh before the students at his clinic. Mr. Callender accepted the invitation, and removed the extremity neatly and well, but with some deliberation. It so happened that Prof. Wood had another thigh all ready for himself to amputate. The patient was wheeled in, and the American professor exclaiming, "Now, I'll show you how I do it," with two or three flourishes, had off the extremity—to the great admiration and applause of the class. It was an exhibition of "Jimmy" Wood's weakest point, his vanity, as well as his surgical skill. This vanity is quite insatiable, but is conceded by its possessor, and has its amusing side. "Jimmy" is very popular with the young men of the profession. These he is always willing to help; in fact there is no surgeon in the city who has aided so many. In return, he exacts of his protegés implicit deference to himself and a sufficient amount of complimentary attention to feed the undisguised vanity of his nature. Dr. Wood is very successful in his surgical operations. Shrewdness and good judgment, a skillful knife and a scrupulous attention to after-treatment will explain this. He does not use the Lister method. His amputations are all treated with open dressings; and he has had such uniform and remarkable success that it would be absurd indeed to make a change. I cannot give the exact statistics, but I am told that he has had only one death from amputations in four or five years. He operates twenty or thirty times during the year. It should be remembered, too, that some of his cases have been treated in wards that used to be rank with puerperal fever.

The question of the dressing of wounds brings up that of Listerism. And it is a somewhat curious fact that while in London Lister is just receiving his greatest triumphs, in New York the method of Lister, pure and simple, is certainly dying out. At the recent discussion on Listerism, in London, only Bryant, Savory and Holmes opposed Lister and his spray. In this city the method is used in New York and Roosevelt Hospitals only by one surgeon. It is but little used in Bellevue, Presbyterian,

St. Luke's and St. Francis, Hospitals. At the Woman's Hospital, it is used as a rule in ovariotomy, but not always. Antiseptic surgery, that is to say, thorough cleansing and drainage are advocated, but Listerism, with its accompanying spray, is not considered essential nor always useful.

At the New York Hospital, a somewhat new and apparently very admirable method of treating compound fractures, has been introduced by Dr. Markoe. Putting them up in Lister was tried for some time, and it was thought at first to be attended with excellent results. But a wider experience shows the contrary. A compound fracture put up in Lister, has to be dressed perhaps a dozen times during the first week. Every time the dressing is renewed, the leg has to be disturbed, the fragments are moved and the parts irritated. The consequences are not good. The new method now adopted is to make a counter-opening to the wound in the injured limb, and to pass a large drainage-tube through this opening. The limb is then put up in a plaster of Paris dressing in which fenestræ are cut. Carbolized water is then injected through the drainage-tube every two hours during the first day, and three times a day after this. Care has to be taken not to run the tube next an artery, as hæmorrhage may follow. With this dressing there is a very moderate fever, the thermometer does not often rise above 102° or 103°, and in some cases it does not reach 100°. Nearly two hundred cases have been tried by this method and, it is stated, there has been only one death, that being in a very bad case. The treatment has diminished the number of amputations performed at the hospital. It certainly is a very rational one and deserves further trial.

A case at Bellevue Hospital in which rhinoplasty was performed, has lately excited much interest among the profession and the public. A young man had lost his nose from a lupoid affection. The progress of the disease had ceased, but the contractions of the scar had produced ectropion of both lids. This was relieved by plastic operations. An attempt was then made to restore the nose, the middle finger of the left hand being used as the agent. The matrix of the nail was first destroyed by caustic as a preliminary measure; an incision was then made along the median

line of the palmar surface of the finger, flaps were dissected back and their edges stitched to the denuded sides of the nasal orifice. During the operation so much blood got into the larynx that tracheotomy had to be performed. After the operation, the finger was held in place by several straps of strong adhesive plaster. It is intended, after the adhesion has taken place, to ligate the digital arteries one after another. The finger will then be amputated, and the new nose perhaps further trimmed into good proportions. At last accounts the finger had united well in all parts except at the top. The deficiency here can be easily remedied. It is not to be expected that the boy will have an organ of Grecian beauty, but all who have ever seen the noses constructed from flaps alone will appreciate the advantage of having something solid and substantial, like a finger, upon which to work.

There is another similar case of nasal difficulty in the hospital, and if the present operations are successful, they will be repeated on the second patient. This particular rhino-plastic operation has been done once before in England, but never with the completeness of detail or in so bad a case as the present one. Dr. Sabine, the surgeon will gain much credit for originality and skill, if he succeeds.

A plastic operation has recently been performed at the New York Eye and Ear Infirmary which is quite novel and interesting. A boy about twelve years old had had his face greatly disfigured by a scar. One of his eyelids was almost entirely gone, the row of lashes being drawn up until nearly where the eyebrows had been before they were burnt off. Dr. Norris, the visiting surgeon, performed the following operation. He dissected off the skin from a large semilunar space just above the eyelashes of the injured side. He then dissected up a piece of skin from the side of the chest. It was semilunar in shape and about three inches long by two in width. This was dissected entirely off and laid carefully upon the denuded surface where the eyelid should be. It was held in place and the eye kept shut by layers of collodion painted over it. The whole piece united to the surface below it, all except the center, doing so by first intention. I saw the boy a couple of months after the operation. The large flap had then contracted down so that it was not more than an inch long by half an inch

in width. The boy had an excellent eyelid, with very little disfigurement. The operation was certainly a great boon to the boy and is extremely creditable to the surgeon.

I was told by the house-surgeon, Dr. Oppenheimer, that benzoic acid which has recently been recommended so highly in eye diseases, deserves much of the credit which it is getting. It is particularly serviceable in corneal affections.

We have been having times of peace and love at the New York Academy of Medicine. A little while ago Mrs. Wm. Astor presented to the Academy, through its president, Fordyce Barker, a beautiful silver cup, to be used on great occasions and called "The Loving Cup." Its presentation was accompanied by a number of speeches. It cannot be said they were very eloquent or of high literary merit, but they gave expression to cordial feelings, and showed an appreciation of the fact that the medical profession is beginning to be estimated at a juster value by the intelligent among the laity. It is a fact, in cities at least, that doctors are both praised and blamed much more than they should be. The profession deserves a different judgment from that given it a generation ago. There are more men in it now of the best education, of fine scientific attainments and general culture. In spite of charlatanry outside and jealousy within, the character and standing of the average physician is higher. It is gratifying, therefore, to see evidences that this fact is getting to be understood.

A great deal has been said and written and done here, about lunacy reform. The medical profession is not, as a whole, very deeply aroused on the subject, although the *Medical Record* has been hammering away for a long time, and the New York Neurological Society has taken the matter up with great vigor. An unsuccessful petition, praying for investigation, was gotten up last year by this society. The senate committee, before whom some of its members appeared and testified, made a report very unfavorable toward taking steps to reform. To this report the Neurological Society have issued a reply in which they show very clearly, and with some vituperative emphasis, that they were unjustly treated and misrepresented in every way. They also sustain most of the charges they made. A bill is now before the

assembly providing for three additional members of the State board of charities, who shall act as commissioners in lunacy. The bill is moderate and sensible; it simply creates a commission raised above political and personal influences, to supervise the management of insane asylums.

As regards the merits of the question, there can be no doubt that we are sadly in need of some change. We have 2,700 lunatics for instance, crowded into two asylums on the Islands in East River. These are under the superintendence of one medical man, with an insufficient corps of assistants, and with no opportunities whatever for carrying out proper treatment for the patients. It is simply one vast boarding-house. There are similar deficiencies in the way of medical attendence, crowded accommodations, etc., in other asylums of the State and the rapid yearly increase of the insane makes the future look unpromising. The great trouble, however, lies in the fact that no radical improvements can be made without incurring much expense, and many think that we are doing well enough now, and that the system will gradually improve if left alone. This is very doubtful and the propriety of having an efficient lunacy board to point out the deficiencies and gradually introduce a better system of care and treatment can hardly be questioned.

The subject of the abuses of medical charity is likely to be agitated here again, this time with a view to introducing the provident-dispensary system as a measure of relief. New York suffers greatly from the crowds of paupers, or would-be paupers, that fasten upon it, and try to live off its charity. No class of persons suffers more perhaps than physicians, whom a great many people are accustomed to think educated and established in order to furnish gratuitous medical relief. The story may have reached you of one of this class, who called in a carriage at a dispensary, and complained at having to wait for treatment, because she was *paying for the carriage by the hour.*

Provident-dispensaries are simply mutual health associations, whose members earn a weekly salary not exceeding ten dollars. They pay a weekly sum of four or five cents into a general fund, and are then supplied when sick, with medical attendance and nursing. Such institutions have been working for some time in

many parts of England, and when they do not have to compete with free dispensaries that furnish clinical material for the medical colleges, they easily become self-supporting and successful. The medical men attending them get paid respectable sums, varying from $300 to $1000 per year. There are of course dangers and difficulties attending them, but there is no reason why they should not be successful and useful in most cases.

Our State is likely to have, at last, a State board of health. This we have needed for a long time. The difficulty of harmonizing State and municipal authority, however, was felt to be great and has prevented any strong efforts from being made. In addition to this there have been very efficient health boards in our larger cities, so that the need of a State organization has not been so much felt. The present bill, however, has been drawn up under the supervision of the New York City Health Board and receives its approval. It makes the usual provisions for sanitary care, the collection of statistics and investigation of scientific subjects. It does not undertake to regulate medical practice or to deal with the quacks, as the Illinois board does. Although this would be desirable eventually, it would be too much for a new organization.

The profession in this city are beginning to prepare (by subscription) for the annual meeting of the American Medical Association in June. Everything is being arranged for the expedition of business and the comfort and enjoyment of the guests. It is likely that the meeting will be a great success and a very enjoyable occasion.

New York has just closed one of its gayest seasons. This may appear to be a fact hardly worth recording in a medical journal, but it suggests a topic, the doctor in society, which might be made interesting. I don't know how it is in other large cities, but here the doctor is a very lively and ubiquitous element in every kind of social gathering. We have a large number of promising young men with "a small but growing practice" who have leisure on their hands, which they use for the delectation of the ladies. There isn't a club or reception, a sociable, a dinner, a dancing party, or a German, that hasn't its medical representative. This medical man-of-the-world pervades every variety of

social gathering and ornaments all strata of society. He may be seen at the unassuming hops in a second-rate boarding-house, as well as at the dinner-tables of the wealthy and fashionable. And this is no exaggeration. There are some who are almost professional society men and "lady-killers." The majority, however, are of those who work hard enough during most of the time and like, once in a while, to look into the palpebral fissures of beauty in search of other things than morbid changes. Some are doubtless seeking, by what is called the "society dodge," to make themselves known. But it is a very uncertain method of gaining professional reputation, to be an expert waltzer. And whatever the motive or result, it is a fact that the young doctor is a brightly conspicuous figure in New York society. Some one has said that "the feeling which woman has for her physician is second only to that which she has for her lover;" and perhaps there is enough of truth in the saying to give the young medical man something of an advantage.

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## ARTICLE IX.

### SMALL-POX.—A SUGGESTION.

ROCKFORD, ILLINOIS, Feb. 12th, 1880.—MESSRS. EDITORS: I notice by the Chicago papers there are some cases of small-pox in the city. Just after the war I had charge of a small-pox hospital at Prairie du Chien, Wisconsin. I succeeded in many instances in preventing the pustules from filling, and aborting the disease, so that the patients did not show any marks or pits a few weeks after recovery. In one instance, a young lady, who would have had confluent small-pox, has not a mark or pit visible to-day upon the face. The remedy is cream of tartar and water; give a sufficient quantity to operate as laxative and diuretic, and continue the treatment as it becomes necessary. The local application, of course, should not be omitted. I should think vaseline or carbolated cosmoline would be a fine external application. This treatment for small-pox may not be new to you, but I am satisfied it is not in general use, and for that reason have mentioned it to you. I shall remain here several weeks, and will be pleased to hear from you. With kind regards, I remain very truly yours, JOHN CONANT.

# Reviews and Book Notices.

Article X.—A Treatise on the Theory and Practice of Medicine. By John Syer Bristowe, M.D., London. Fellow and formerly Censor of the Royal College of Physicians; Senior Physician to and Joint Lecturer in Medicine at St. Thomas' Hospital; Examiner on Medicine to the Royal College of Surgeons; formerly Examiner in Medicine to the University of London; and Lecturer on General Pathology and on Physiology at St. Thomas' Hospital. Second American Edition revised by the Author. With Notes and Additions by James W. Hutchinson, M.D., one of the Attending Physicians to the Pennsylvania Hospital; Physician to the Children's Hospital, Philadelphia. Philadelphia: Henry C. Lea, 1879.

This is a full-sized octavo volume of 1,081 neatly printed pages, with good leather binding. It is a general work on the theory and practice of medicine, written expressly for a text-book for the use of students. As this is the second American edition, it would be pleasant to join most of our cotemporaries in simply saying that the work is already too well and favorably known to the profession to require an extended notice at our hands. But having recently, in a brief notice, found some fault with the new volume on Clinical Medicine, by Dr. A. Flint, we could not consistently pass the present work with a mere general commendatory remark.

The work before us is divided into two parts. Part I, General Pathology, occupies the first one hundred pages of reading matter, and includes a brief discussion of the Definition of Disease; the Etiology of Disease; Physiological Processes in Health; Physiological Process in Disease, and the Treatment of Disease.

In regard to the first topic here mentioned, the author, after three pages of comments and illustrations, states his definition of disease as follows :

" And hence, if these views be generally true, disease may be defined *as a complex of some deleterious agency acting on the body, and of the phenomena (actual or potential) due to the operation of that agency.*" (Page 36.)

The italics are the author's, and the words thus emphasized clearly show that he includes in his idea, as expressed by the word *disease*, three distinct things, namely, the cause or causes ; the morbid conditions or disease proper ; and the phenomena or symptoms by which the latter is manifested. When the writers of two or three generations past, defined disease by enumerating a group of symptoms, and designated the morbid or pathological condition as the *proximate* cause ; and the causes or agencies inducing such morbid condition or proximate cause, as predisposing and exciting causes, they preserved, at least, a logical clearness of statement. They misplaced the word disease, by using it to designate the symptoms or phenomena of morbid conditions, instead of the conditions themselves ; but they avoided confounding together things or ideas essentially distinct. Our present author, however, insists on making confusion worse confounded in the mind of the student, by including in the meaning of one word, disease, causes, morbid conditions, and consequences or symptoms. That I do the author no injustice here, I will quote his own illustration directly following his definition of disease as already given, from page thirty-six.

He says : "All diseases involve, some in a greater, some in a lesser degree, certain groups of pathological consequences immediately traceable to their respective morbid causes ; but these primary pathological consequences themselves tend to evoke others, these again a tertiary series, and so on continuously.

" Thus a person with carcinoma of the bowel may, as a consequence, have stricture, or perforation, or involvement of the glands occupying the retro-peritoneal tissue and gastro-hepatic omentum, or that form of cachexia which cancerous disease so frequently induces ; and, as a consequence of these several secondary morbid conditions, various other affections, such as enter-

itis, peritonitis, jaundice, ascites, melæna, thrombosis or anasarca. Now all these phenomena, and many others, are obviously integral portions of the carcinomatous affection which the patient is suffering, and all of them may be regarded as symptoms or incidents of that affection; but many of them are not unfrequently also looked upon as quasi-independent disease, and treated as such. There is no doubt that they are *not* diseases. They are clearly however, elements of disease; and inasmuch as each one of them arises out of some immediately antecedent abnormal condition which is its direct cause, they do obviously enough, in association with their respective causes, fall severally within our definition of disease."

Here the author apparently for the sole purpose of making it appear that a definition of disease should embrace, not only the disease proper, but also its causes and consequences, allows himself to call such distinct morbid conditions as stricture and perforation of the intestine, enteritis, peritonitis, etc., mere "phenomena," "symptoms or incidents" of a prior disease; "*integral* portions of the carcinomatous affection;" and to declare "that they are not diseases," but "elements of disease." If any one can explain how a morbid condition like peritonitis, for example, can be at one and the same time, an "element" or "integral portion" of a prior carcinoma of the bowel, and a "phenomenon," "symptom or incident" of such disease, he will certainly exhibit a rare degree of skill in reconciling incongruities in the use of language. Is a peritonitis, enteritis, or stricture any the less a disease, because it exists as a complication of carcinoma of the bowel, which may have acted either as a predisposing or exciting cause?

Certainly not. The author carries the same confusion of ideas, or inaccuracies of expression into his general comments on etiology. Instead of dividing the causes of disease into simple predisposing and exciting, he follows the example of earlier writers and divides them into predisposing, exciting, and proximate; and gives the usual definition of each class, declaring the *third* class to comprise "those morbid processes which the action of the exciting cause calls into play, and to which the symptoms are supposed to be directly due."

Yet he immediately adds: "The proximate cause indeed, is often, though *erroneously* said to be the disease itself." But why erroneously? If, as he has just asserted, the *proximate* cause comprises "those morbid processes," or deviations from the healthy standard of action, "which the action of the *exciting* causes calls into play," what is it but the disease itself?

If the morbid processes or changes set up in a living structure or organ by action of some exciting cause, do not constitute a disease, pray what does? Our author, however, proceeds to illustrate as follows (See p. 37):

"A woman, who has frequently been exposed to the contagion of scarlet fever without taking the disease, is again exposed at the period of child-birth, and now suffers from a virulent attack. Here, peritonitis, which renders woman peculiarly susceptible of the contagious fevers, is the *predisposing* cause; the scarlatinal contagion is the *exciting* cause; and the inflammatory processes going on in the skin, tonsils, and elsewhere, the *proximate* causes of most of the symptoms which the patient manifests."

So far all is clear, "But," he immediately adds, "the *exciting* cause of the scarlet fever is obviously the *proximate* cause of that disease, and the *proximate* causes of its several secondary phenomena are just as obviously their *exciting* causes." He had just stated that the exciting cause was the scarlatinal contagion or poison, and that the inflammatory processes going on in the skin, tonsils, etc, were the proximate cause. Now he declares the exciting cause of the fever to be the proximate cause. In other words, the cause of the disease is the disease itself. The student who is expected to acquire logical modes of thought, and clear conceptions of the relations between causes and effects, from the study of the first part of Dr. Bristowe's work is not to be envied.

The great body of the work is occupied by Part II., Special Pathology, or the consideration of individual diseases.

These are arranged under eight heads or chapters as follows: 1. Specific Febrile Diseases; 2. Diseases of the Skin; 3. Diseases of the Respiratory Organs; 4. Diseases of the Vascular Organs; 5. Diseases of the Digestive Organs; 6. Diseases of

the Genito-Urinary Organs; 7. Diseases of the Organs of Locomotion; 8. Diseases of the Nervous System.

The details of this part of the work are full and comprehensive, so far as the number of subjects treated, is concerned. And though we should be obliged to differ with the author in regard to some etiological and pathological doctrines, yet as a general rule his account of the symptoms, progress, and diagnosis of diseases is concise, clearly stated, and satisfactory.

Sometimes, however, his descriptions are lacking in accuracy, and he not unfrequently uses words of specifically different meaning as promiscuously as though they were synonyms. But the least satisfactory part of the whole work, so far, at least, as it is used by students and inexperienced practitioners, is that relating to the treatment of individual diseases. In most cases his views concerning the remedial treatment of diseases, are expressed in the most brief and general terms, with no adequate adjustment of the remedies to the different stages in the progress of the morbid processes, nor any allusion to the variation of doses required to accomplish given results, in different morbid conditions. Take as example, variola or small pox. After occupying seven closely printed pages in describing the causes, symptoms, progress, diagnosis, etc., his entire account of the internal treatment of the disease is embraced in the following quotation, occupying about one-third of page 174:

"*Treatment.*—In the mildest forms of small-pox medicinal treatment is scarcely called for; in the severest it is useless; and indeed, under any circumstances, it has but little influence over the course of the disease. The patient should be placed in an airy chamber, which should be well ventilated, and kept at a uniform and medium temperature. He may take as medicine some cooling drink—lemonade, soda-water or other saline or acidulated solution. If the bowels be confined, they may be acted upon by some mild laxative; if there be diarrhœa (especially in adults), they must be restrained by opiates, or other astringents. The soreness of the throat may be relieved by warm bland drinks, or black-currant jelly; and, if there be much discharge from the nose and about the fauces, these parts may be washed with some mild detergent or astringent solution.

Opium is often of value both in relieving the delirium and assuaging the pain of the invasion period; but it is especially useful during the period of secondary fever. If there be great tendency to collapse, ammonia may be serviceable. Nourishment should be regularly administered, and should consist of the materials generally suitable for febrile conditions, namely, milk, rice-water, gruel, beef-tea and such like. Alcoholic stimulants must be given according to circumstances; but are *especially important* in the malignant form of the disease, and in the later periods of confluent, small-pox, or whenever there is tendency to collapse."

Here, we are told in the first paragraph, that all medicinal treatment is either unnecessary or useless; and in the last, that certain remedies are "especially important," in the very same class of cases that they are declared to be "useless" in the first. We are told that, "if there be great tendency to collapse, ammonia may be serviceable," but which of the half dozen preparations of ammonia is to be used, or in what doses, the student is left to guess. The entire treatment of yellow fever occupies about one-third of a page; that of enteric or typhoid fever less than two pages; and that of pneumonia nearly one page. In regard to this last-mentioned disease, the author makes no allusion to the very important modifying influences of coincident typhoid and malarial agencies, either upon the progress or treatment of the disease: yet every practitioner of experience, in this country, can testify to the very great importance of giving due heed to the influence of these agencies in the remedial management of this grave and frequently-occurring disease.

It is not necessary to extend the comments upon this work further, or to particularize further defects. It is sufficient to add that it is not such a text-book on the theory and practice of medicine as is most desirable for the use of students and young practitioners. N. S. D.

# Editorial.

## MEDICAL CHARITIES.

The abuse of medical charities has been the subject of discussion in nearly all the larger cities, both in this country and in England. Recently it has been attracting more attention than usual in this city, and is at present the subject of frequent discussion, especially among the younger members of the profession. The general social problem of how best to aid the really needy without encouraging idleness, pauperism and vice, is one of great importance and its practical solution involved in many difficulties. The medical aspect of the problem, or that which relates to the professional care of the sick poor, is the one that more immediately interests our readers, and indeed the profession generally. That the establishment of free hospitals, dispensaries, infirmaries, institutes, college clinics, etc., and liberally supplying them with medical and surgical attendants and medicines, tends strongly to increase the number of applicants for medical charity, and in the same proportion to increase the burden of taxation, on the one hand, and on the other to rob the members of the medical profession of the patronage of a large number of patients who are really able to pay moderate fees for all the attendance they need, has been so fully demonstrated in all the larger cities of our country as to need no further discussion.

When more than one out of every twenty of the entire population of a city like Chicago, is found to be receiving gratuitous medical services in connection with the various free dispensaries, it needs no further argument to show that a great wrong is being inflicted, both on the taxpayers and the members of the medical profession, while the undeserving recipients of the charity are

themselves injured in the impairment of their feeling of self-reliance, independence and motives to industry. Many in the profession are disposed to attribute all the evils and abuses to which we allude to the lax and careless manner in which the public medical charities are administered, and especially to the ambition of those connected with these charities and with the medical colleges, to draw to them as large numbers as possible, simply to increase the supply of clinical material and to advance personal interests.

There is certainly some degree of truth in this view; but the whole evil, or even the larger part of it, does not originate from this source. We have been interested observers of the working of both public and private charities for more than forty years; and have never known a place opened for the dispensation of relief to the poor, whether sick or well, that was not besieged by many who were fully able to take care of themselves, or to pay for whatever services they needed.

In the dispensation of ordinary supplies of food and clothing much imposition can be guarded against, by a system of actual visiting and inspection before the applications are answered. But this system cannot be properly and successfully applied, except in a very limited number of cases to applicants for medical advice or medicines.

Is there, then, no way by which the really poor, when sick, can receive prompt and proper attendance and medicines, without opening a door of charity through which thousands will pass who could and should pay for all they need? Is there no way to secure help for the needy and at the same time avoid robbing the profession, the benevolent, and the tax-paying public? So far as attention to the sick is concerned, we think there is. The code of ethics, governing the medical profession, not only permits but enjoins a liberal and faithful attention to the poor when sick, on the part of every member of that profession. And there are in every place, at least in every populous town, physicians enough to supply any sick person in it with all the attention they need. Among them are always a fair proportion of the younger class, well educated, competent, and anxious to accept any call to the sick that will help to fill up their leisure time, add to their practical experience, and further their professional introduction

to the community. For this class of practitioners the sick poor are the natural stepping-stones over which they must pass to the paying part of practice. Faithful and skillful attention to the sick poor in their own homes, on the part of young physicians, constitutes the best possible letter of introduction to the rich. But it is not the younger class of physicians only, who promptly and cheerfully render gratuitous service to the sick poor.

During a long professional life we have very rarely known a physician or surgeon of ripe age, full practice and high reputation, to refuse attendance upon the most abject poor when asked, merely because they were poor. Such are compelled sometimes to refuse attendance because previous engagements do not allow a moment of time in which to do it. But even in all such cases they are ready to direct the sufferer to some less occupied professional friend who will attend. Indeed, if every dispensary staff and other organization for furnishing free attention to the sick poor outside of the regular hospitals, were dismissed from duty to-morrow, we do not think there is, or would be, a truly needy sick person in the city who could not get all necessary professional attention by simply asking for it. If these opinions are correct (and of their correctness we have no shadow of doubt), what provisions are actually necessary for the sick poor, and how shall such provision be guarded from abuse?

After devoting much attention to this subject, we are convinced that all establishments, whether called dispensaries, infirmaries, or clinics, where the sick are invited to call for medical advice and attendance, are unnecessary and more or less injurious, both to the profession and the community.

Good public hospitals, to accommodate those who have no homes or places where they can be well cared for when sick, whether poor or not, are necessary. And of these we have a good supply in this city. The only provision needed, outside of such hospitals, is for the proper public authorities (here the county commissioners) to establish from one to three drug depots in each division of the city, supply them with a good assortment of pure drugs, and with a good *dispensing drug clerk* (and assistants if he needs them), to dispense the drugs whenever called for, by the presentation of proper prescriptions. But no

prescriptions should be accepted or filled at any of these places unless made by physicians legally authorized to practice medicine in this State, and having plainly written on them that they are given for patients to whom the maker of the prescription gives his own services gratuitously. This would place a supply of reliably dispensed medicines within the reach of all patients, who were sufficiently destitute to satisfy the physician that his own services should be rendered without pay, and at the same time place all those legally authorized to practice medicine on the same footing in relation to the sick poor. The drugs being purchased at wholesale prices, and the depots simple, convenient. inexpensive rooms for dispensing the medicines, the expense of maintaining them would be light, and being accessible for the prescriptions of all physicians on the same terms, there would be no trouble in finding free medical service for every really poor patient asking it. And yet all who could pay even moderate fees for the services of a physician would be compelled to do so, instead of crowding the rooms of dispensaries where each establishment is more anxious to make a large show of attendance, than to make proper discrimination between the deserving and undeserving. Perhaps some one is ready to say that such a system as we have proposed, would deprive the medical schools of a very important part of their material for the clinical instruction of their students. It would be a sufficient answer to such an one, to say that no medical school has any legitimate right to exist, unless so connected with a public hospital, that the necessary clinical instruction can be given within its walls. But the plan we propose would not necessarily prevent the medical colleges from having all the outside clinical material that their faculties could profitably use. Probably not one-third of all those now resorting to the several dispensaries in this city are used for any valuable clinical purpose. And most certainly, the faculty of any college located in the midst of a large city, the members of which were possesed of sufficient ability and reputation to justify them in holding such official position, could draw from the poor within the circle of their own practice and that of their intimate professional friends, all the well selected clinical material they could profitably use, outside of that belonging in the hospitals.

We know the foregoing doctrines in regard to taking care of the sick poor, are not in accord with the fashion of these times. We live in a generation that has very nearly reversed the old rule, "When thou doest thine alms let not thy left hand know what thy right hand doeth." The popular method now is to do everything by organizations admitting of official positions, public meetings, and newspaper heraldings.

It is so much easier to give five, ten, or one hundred dollars, once a year and have it duly acknowledged in the church and the newspapers, and let a salaried officer do the distributing, than it is to personally search for the poor and discriminatingly supply their real wants, and add that friendly counsel which is often more needed than anything else. It is not strange, that in medical matters, the same popular tendencies should have so far predominated, that instead of allowing every practitioner to attend to the sick poor properly within his own circle of practice where he would be led to exercise a just discretion founded on personal knowledge of the parties for whom he acts, the funds should be centered in an organized dispensary fully officered, supplied with a formidable staff both for in-door and out-door attendance, and then if the trumpet is not literally sounded, the *hand-bills* are sent out, with a "Ho! all ye that are ailing, come to the dispensary and get healed without money and without price." Is it any wonder that thousands answer the call who are fully able to take care of themselves, and that in consequence, tax-payers are over-burdened, the mass of the profession robbed of the patronage that belongs to its members, and a premium put on idleness and pauperism? We are glad that the medical aspect of this great social problem is beginning to attract the attention that it deserves. D.

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PROVIDENT DISPENSARIES.—The Medical Institute of Liverpool refuses to give its countenance to provident dispensaries, because they are business institutions and liable to abuses.

# Selections.

## Hospital Practice.

*St. Georges's Hospital.—Case of Hypospadias. (Under the care of Mr. T. Pickering Pick.)*

Plastic surgery, or "restorative surgery" as it is sometimes called, is always a subject of great interest, and one which merits the careful consideration of every practical surgeon. Operations performed for the cure of deformities, the relief of a hare-lip, the restoration of a nose, the closure of a fistulous opening, and such like, form a class in themselves, and require special attention and care on the part of the operator, if he would bring his case to a successful issue. At the same time there are perhaps no cases which are so satisfactory when successful, and which bring greater credit to the surgeon. Deformities are always of a distressing nature to the patient, and entail a great amount of suffering, either bodily or mental, and any operations which can be performed for their relief are sought eagerly after and gladly welcomed. The following case of hypospadias is recorded as affording a good example of what may be achieved in a form of malformation not unfrequently met with, and which, though it does not entail much bodily suffering, is the cause of very considerable mental distress to the patient.

Henry B——, aged thirteen, was admitted on Jan. 19th, 1875, suffering from hypospadias. The penis at first sight appeared to be quite rudimentary, consisting merely of the glans, which, however, was well developed and was covered on its dorsal surface by a considerable semilunar fold of skin and cellular tissue, which formed a sort of hood to it. This was the prepuce, malformed by being cleft on its under surface, heaped up on the dorsal aspect

of the glans into a semilunar fold, and attached by its extremities to the scrotum on either side of the rudimentary penis. Upon examining more closely, it was found that the body of the penis was bound down to the scrotum by a broad fold or web of skin. When erection took place it was arched, with the convexity upwards. The orifice of the urethra was in the scrotum, at the anterior extremity of the median raphé, and was situated at the bottom of a sort of fossa or cul-de-sac in this situation. Just above it was the glans penis, overhanging the orifice, and in the center of the glans was a slight depression in the normal position of the meatus urinarius. The boy was a fine-grown, healthy, intelligent lad, and presented no other malformation.

The first operation (Feb. 10th) consisted in making a traverse incision through the whole thickness of the semilunar prepuce just in front of its attachment to the corona glandis, so that it was only attached to the sides of the scrotum and penis by its two extremities. The mucous membrane at the margins of the incision was then stitched to the corresponding skin on either side, and the glans penis was protruded through the button-hole opening which was thus made. By this proceeding the malformed prepuce was brought down beneath the glans penis, and formed a sort of bridge stretching across from one side of the organ to the other, while the glans protruded through the opening thus made. The wound took some time to heal, but eventually did so, and a passage then existed between the inverted prepuce or bridge of skin and the under surface of the glans penis, which was intended to form part of the urethra.

The second step of the operation (May 12th) was undertaken to liberate the body of the penis from the scrotum. This was done by dividing the web of skin which connected the two together, and thus gradually raising the penis. The result of this was a large diamond-shaped raw surface where the one organ had been separated from the other. The edges of this surface were drawn together by hare-lip pins, so as to convert it into a longitudinal wound. In performing this operation care was taken not to interfere with the points of attachment of the bridge of skin formed by the inverted prepuce, by making the incision a little posterior to it, for fear that its vitality might be destroyed

After the wound had healed, it was found that there was a fairly formed penis, about an inch in length. At the anterior extremity of this was the glans, with the inverted prepuce on its under surface. On the anterior surface of the scrotum, some distance below the point of attachment of the skin of the scrotum to that of the penis, was the opening of urethra. The space between these two points—that is to say, the glans penis and the opening in the scrotum—was occupied by the cicatricial tissue which was the result of the previous operation, and was intended to form the roof of the new urethra.

The third step (June the 26th) consisted in bringing over two oblong flaps to form the floor of the urethra, by a somewhat similar operation to that which is described and advocated by Mr. Holmes for extroversion of the bladder.* On the left side an oblong flap, with its base towards the middle line, was dissected up from the tissues on the sides of the scrotum and penis, so that its attached border was some little distance to the left of the middle line just external to the cicatricial tissue before mentioned. This flap was turned over, like the leaf of a book, so that the skin surface was directed towards the opening in the scrotum, and was intended to form the floor of the urethra, and the raw surface turned outwards. On the right side an oblong flap was fashioned, one side of the flap skirting the right border of the cul-de-sac or fossa in which the urethra was situated, and being carried upwards and to the right side of the penis; a second incision was made parallel to this, and about an inch external to it, and the two joined by a cross incision at the lower extremities, so that the attached border was directed upwards and outwards. This flap, having been dissected upwards, was applied to the raw surface of the left flap by gently sliding it round, in the manner described in the operation for extroverted bladder, and the two flaps were united together by several points of silver suture. The wounds caused by the transplantation of the flaps were also closed by suture. Union took place very readily, and we had now a second bridge of skin which covered over the linear cicatrix in the middle line, which had been formed as the result of the operation for

* Surgical Diseases of Children, page 149.

separating the penis from the scrotum. This bridge extended from the opening of the urethra below, almost to the glans penis above. The next step (July 10th) consisted in attaching the lower margin of this bridge to the skin of the scrotum below the opening of the urethra. This was done by rawing the lower border of the flap and implanting it into a transverse groove which was made in the front of the scrotum, just below the fossa, by slightly dissecting up the skin, so that the flap was dovetailed, as it were, into the skin of the scrotum, and fixed there by silver sutures, and thus the opening into the cul-de-sac from below was closed.

This operation was not entirely successful, a small fistulous opening being left at one point, but this was subsequently closed July 24th, and the urine now flowed over the flap or bridge, and was discharged above its upper margin. The final step in the proceeding consisted in attaching the upper border of this bridge to the lower border of the inverted prepuce. This was done by rawing the two margins, and sewing them together with several points of silver suture. During the attempt to close this opening the water was drawn off, and the patient was not allowed to pass any of himself, because it was feared that some of the urine might find its way between the edges of the wound and interfere with union. The result, however, was most satisfactory; complete union took place, throughout the entire length of the wound. The series of operations were now completed, and a sort of canal had been formed which extended from the opening of the urethra in the front of the scrotum to the base of the glans penis, which it was hoped would be sufficiently perfect to enable the patient to perform the act of copulation with the result of ejecting the semen into the vaginia, a proceeding which would clearly have been impossible previous to the performance of the operation.

Four years have now elapsed since the case was completed, and the following is the condition of parts: The boy is just eighteen, but does not look more than sixteen. The penis is small, but otherwise well developed. On the under surface of the organ is a canal, which has been formed as above described, which extends, from the corona glandis to the original orifice of the urethra in the scrotum.

This canal is rather large, so much so, in fact, that it would be possible, with a certain amount of stretching, to introduce the little finger. It is about an inch and a half in length, and by dilating its orifice one can see at the bottom the opening of the urethra on the anterior wall of the scrotum. There can be little doubt from the condition of the parts that all the natural functions could be satisfactorily performed.

*West London Hospital.—Urethral Calculus Impacted behind a Tight Traumatic Stricture; Continuous Dilatation; Spontaneous Expulsion of the Stone; Patient attacked with Pleurisy when about to return home Cured; Death.* (*Under the care of Mr. Teevan.*)

George O——, a laborer, forty years old, was admitted into the hospital on Jan. 7th, 1879, having been put under Mr. Teevan's care by Dr. Hurdwood, of Leatherhead. From notes taken by Dr. Warrilow, the house-surgeon, it appeared that the man was formerly a soldier, and had suffered from fever in India and from ague in the Mauritius. In 1865, whilst engaged with some soldiers at St. Helena in hoisting a gun from a boat into a ship, the gear broke. Several of the men were killed, and the patient fell astride the gunwale of the boat. Blood escaped from the penis, and a swelling formed in the perineum. He was taken into the military hospital, where an incision was made into his perineum, much blood and urine flowing out. For three years he had been troubled with difficulty in making water, for which he sought advice, and had the stricture dilated to No. 12 E. On several occasions he had rigors, and suffered from pain in the loins. Two weeks ago no instrument could be passed.

When admitted to the hospital he was thin and sallow, had difficulty in micturition, and his urine contained some muco-pus. The scrotum and perineum were scarred with many cicatrices. No catheter could be introduced through the stricture, which commenced just in front of the bulb. An olivary whalebone bougie was wriggled through the contraction, and struck what was apparently a calculus, which could be felt through the rectum or perineum. With a little trouble the bougie was worked past the obstruction into the bladder, and there retained.

On January 9th the instrument was removed, and two hours afterward the patient expelled a phosphatic calculus about an inch long, resembling a piece of the stem of a common clay smoking-pipe. The stricture was gradually dilated, an olivary elastic catheter being passed every other day. During the whole of the period the patient was up and about the ward giving a helping hand.

On January 28th Mr. Teevan introduced No. 20 F., and, as the patient was able to pass the catheter for himself, he arranged to return home in a few days.

On the 30th Mr. Warrilow introduced No. 20.

On the 31st, 9 a. m., patient stayed in bed, complaining of headache and pain in the limbs. Pulse 100; temperature 99.8°. Temperature 100° at 8 p.m.

On February 1st he was more indisposed. Temperature 103°; pulse 120. In the evening he suffered much from dyspnœa and paroxysmal pain in the left hyprochondriac region. Had a subcutaneous injection of morphia, which relieved the pain, and an enema, which removed the constipation and tympanites. The abdomen was covered with a linseed-meal poultice. Ordered brandy, milk and ice.

February 2d.—9 a. m.: Great pain in region of heart. Countenance anxious. Knees drawn up. Abdominal tenderness in left hypochondriac region. Pulse 99; temperature 120°. At 5 p. m. the patient commenced vomiting a clear fluid at intervals. Tongue covered with a thick yellow fur. Body bedewed with a cold clammy sweat. Vomiting ceased at 11 p. m. Ordered nutrient enemata and morphia.

3d.—Vomiting recommenced at 5 a. m., and continued throughout the day. The patient was examined by Dr. Fish, under whose care he was now placed. Dullness over left lung in axillary region; vocal fremitis diminished; shrill tubular note. Dr. Fish pronounced the pain to be pleuritic. Linseed-meal poultices were applied over the back and side, the nutrient enemata were discontinued, and the patient was ordered brandy and milk. Temperature 103°; pulse 130.—10 p. m.: Temperature 100°; pulse 120.

4th.—9 a. m.: Temperature 100.2°; pulse 99. Delirious

part of the night, but obtained some sleep in the early morning. Free from pain. Bowels open.

5th.—9 a. m.: Temperature 99.2°; pulse 132. No vomiting. Respiration more hurried. Takes ten ounces of brandy.

6th.—Slept well. Decided improvement. Tongue clean. Bowels open; motions solid. Temperature 99.2°. 8 p. m.: Temperature 100°.

7th.—Physical signs much the same. Takes nourishment freely. Temperature 99.2°. 8 p. m.: Temperature 100.8°.

8th.—Temperature 99.4°; less dullness on percussion; less pain. 8 p. m.: Temperature 100°.

9th.—Temperature 99°; face pinched and dusky; breathing hurried; respiration 26; suffers but little pain. 8 p. m.: Temperature 99.8°.

10th.—Temperature 99.2°; restless and delirious in the night; takes but little nourishment. 8 p. m.: Temperature 99°; more pain in side; bulging in intercostal spaces; more dullness on percussion; had severe paroxysms of dyspnœa at night.

11th.—Had a restless night; great pain in side; more bulging in intercostal spaces; area of dullness greater. About 8:30 a. m. the patient asked to be raised in bed, when he suddenly fell back asphyxiated.

*Necropsy*, Feb. 13th, 10 a. m.—Chest: Left pleural cavity contained upwards of a quart of muco-purulent fluid; left lung compressed and flattened, weighed only seven ounces and a half; pieces of it sank in water. Right lung weighed twenty-two ounces and a half, and contained a few tubercles. Heart healthy. Abdomen: Spleen and liver healthy; left kidney seven ounces, right one six ounces; they were both examined microscopically by Mr. Augustus Pepper, who pronounced them healthy. The bladder and prostate were healthy; there were two false passages extending into the substance of the gland for a short way, which were lined with a mucous membrane, and were evidently of considerable age. In the urethra the remains of the stricture could be seen, and it was evident that the stone, which was phosphatic, had been formed in the dilated portion of the canal behind the contraction.

*Remarks by Mr. Teevan.*—The patient when quite cured of

his local ailment, and about to return home cured, was attacked by pleurisy. Unfortunately the man's constitution had been deteriorated by the fever and ague from which he had suffered whilst in the tropics, so that he was predisposed to catch cold, and formed one of the many victims to the excessively low temperature which prevailed at the time of his illness. Happily, in the present instance, no operation had been performed, so that surgery must be held blameless for the unfortunate termination. When the patient was admitted he was not suffering from retention, and was able to pass urine by the side of the calculus. The case illustrated what could be achieved by apparently so insignificant an instrument as a fine whalebone bougie, which in the present instance had effected the dilatation of the stricture and the expulsion of the stone.

*Somerset Hospital Cape Town, Cape of Good Hope.—Inguinal Aneurism; Ligature of the Right Common Iliac Artery; Recovery.* (*Under the care of Dr. A. L. Chiappini*).

The following notes were taken by the late Dr. W. H. Wood:

W. H——, forty, was admitted on January 2d, suffering from a very large inguinal aneurism, which could be distinctly seen pulsating through his trowsers, and forming a prominence on the right side. He was of intemperate habits, but had never had syphilis. He stated that about fifteen months before admission he was engaged in loading a vessel with copper ore at night, and that when lifting a particularly heavy bag he felt something give way on his right side, and he immediately had very severe pain in the right groin, and about three hours after this, on putting his hand within his trousers-pocket, he felt a lump, which was not very hard, and about the size of a pigeon's egg. At nine next morning he showed it to a medical man, who ordered him to poultice the swelling, which was now very hard. He lay up and poulticed for nearly a week, when, the pain having diminished, he returned to work, and two months after again showed it to the same gentleman. The tumor was now the size of a hen's egg, and the man noticed for the first time that it pulsated. He was told to continue the poultices. Time passed on, the man being at work on and off; the tumor still increasing and causing

great pain down the right leg. About three months before admission the "lump" was, he said, about the size of a "baby's head," and he again showed it to the doctor, who advised him to poultice continually. A few weeks before admission he saw another medical man, who immediately ordered him to the hospital, to which he went by sea.

On examination, an immense pyramidal tumor was seen, pulsating with a strong expanding impulse, occupying the whole of the right iliac region, being raised about five inches above the surface; a tape lay across it measuring just a fraction under twelve inches from edge to edge. The upper limit was level with the crest of the ilium; to the left it approached closely to the pubes, while it was prolonged downwards into the thigh, Poupart's ligament being tightly stretched over its lower portion. The tumor was soft and elastic; at the apex the sac was very thin, and the skin a dusky purple, and it was evident it mussoon give way. The right leg was considerably swollen; the temperature was the same in both legs.

On the 8th, or six days after admission, the patch at the apex was larger and thinner, and after consultation it was decided to operate the next day.

On the 9th Dr. A. L. Chiappini, the visiting surgeon, accordt ingly proceeded to operate, making a semilunar (from the small space at his disposal, almost a semicircular) incision, with its convexity at the furthest about five inches from the umbilicus. The peritoneum, which was not adherent, was pushed back with the intestines, and the common iliac artery exposed (as was expected, there was nothing to be seen of the external iliac artery) and ligatured with thick silk. One end of the ligature was left hanging out, and carbolic dressings were applied to the wound, which was brought together by a few sutures. He was then put to bed, and the leg, previously shrouded in cotton wool, was surrounded with hot sand bags and hot-water bottles. In the evening his pulse was 90; he had not much pain anywhere. Had half a grain of morphia. Had a good night and passed water freely. The next morning the tongue was clean; pulse 112; temperature of body 99.5°. At 9 a. m. the pulse was 100; the temperature 99°. Repeat the sedative draught.

He continued without one bad symptom, not suffering so much from pain and numbness in the leg as before the operation, and having perfect sensation in the leg. The tumor very rapidly decreased, at one time, however, threatening to suppurate, and on the 20th day after the operation the ligature came away. The man is now in perfect health, and working as a navvy on the railroad works.

*St. Bartholomew's Hospital.—Three Cases of Chronic Meningitis, Following Injury to the Skull.* (*Under the care of Dr. Southey.*)

Severe localized headache, delusions, mental aberration, signs of paralysis, epileptic fits, and other symptoms as sequelæ of injuries of the skull, are more familiar to surgeons than to physicians. During the present year we have published in the *Mirror* many cases of fracture or other injury to the skull followed immediately, or after a longer or shorter interval, by symptoms of cerebral lesions or mental impairment. We may indicate some of the cases included in the instructive series taken from Dr. Hulke's clinique at the Middlesex Hospital, and distributed over many issues; two cases reported from Mr. Jonathan Hutchinson's wards in the London Hospital; and the extremely interesting cases that were under Mr. Davis-Colley's care in the Seamen's Hospital, Greenwich.

The following cases will, in addition to their own intrinsic merits, give increased importance to those just referred to. They show that chronic meningitis may follow blows on the head at a period so remote that the connection between the two may be entirely overlooked or misinterpreted. As Dr. Southey pointed out in some comments on these cases, the difficulty of tracing any connection between the injury and the symptoms of meningitis is usually increased by the circumstance that when the patients come under observation they are often unable to give any trustworthy account of themselves. The symptoms may point distinctly towards chronic meningitis, but the initial lesion is not made known. The presence of tuberculosis is too often accepted as an ever-ready explanation of the phenomena; whereas these cases of late traumatic meningitis are wholly unlike, in course,

duration and morbid anatomy, tubercular meningitis, though simulating it in their clinical characters.

CASE I. *Chronic Cerebral and Spinal Meningitis occurring Four Years after a Fall from a Window; Death.*—Mary Ann S., aged twenty-seven, a pale but fairly-nourished woman, was admitted Nov. 5, 1878, with vomiting and diarrhœa. Her appearance was not prepossessing, in consequence of a deep indentation of the bridge of the nose, the result of an old fracture. The mental state was peculiar. She could give no account of her illness; but she possessed all the special senses, as well as power of motion and of sensation, and a little, though degraded, intellectual power. Though listless, morose and indifferent to questions directly addressed to her, she every now and then threw a remark into her mother's statement respecting her ailment, confirming, correcting, or repudiating it indiscriminately. Her memory was obviously defective, but there was an apparent desire not to mislead or to have her history misstated.

The remains of the old fracture of the nose suggested an inquiry into the circumstances of the accident. It was alleged that four years previously the patient fell out of a window (the height was not ascertained), and was picked up unconscious and bleeding from the nose. Consciousness soon returned, and beyond the depression of the bridge of the nose, she was not thought to have suffered any particular damage. She set about her usual domestic duties at once, and made no further complaint. About two years after this she married, and was confined of a healthy child about eighteen months afterwards. She was suckling the child, aged six months, at the time of admission, and had a moderate amount of milk in both breasts. After her confinement she remained low-spirited and ailing, and five weeks before admisson her husband and relations noticed her conduct to be strange; she talked a good deal of nonsense, they said, occasionally wandered about the house at night, and was unable to give any good reason for her vagaries. About a fortnight before admission her hands became red, swollen and painful, so that she could hardly move her fingers. This was attributed to rheumatism. She gradually became more delirious and difficult to restrain or keep in bed, and three days before entering the hospital vomiting supervened. She

was stated to have been healthy, of temperate habits, industrious and happy in home.

When taken into the hospital she walked up stairs slowly and stiffly, and required little help to undress herself. She seemed stiff and weak, and moved her head stiffly, and she complained of pain down the spine, especially at the cervical portion. There was, however, no tenderness on pressure over any of the spinous processes. The pupils were equally dilated, and reacted slowly to light. The physical signs of heart, lungs and abdominal viscera were normal. The tongue was thickly furred and indented at the edges. The bowels were confined. Temperature 99.4°; pulse feeble, 92; respiration 23, tranquil and regular. At first she refused to take some beef-tea, saying she should only bring it up again. After a little pressing she did take some, and at once ejected it. Urine: thirty to forty ounces passed daily, acid; sp. gr. 1030; yielding a deposit of urates, and containing a trace of albumen, but no sugar.

The diagnosis was chronic cerebral and spinal meningitis, but whether of tubucular nature or not was left undecided.

She was fed frequently with small quantities of milk and beef-tea, and had nutrient enemata whenever the stomach rejected food. She was quieted with draughts of chloral hydrate and bromide of potassium combined; occasionally she needed hypodermics of morphia. She had alterations of excitement and depression. On some nights her cheeks would be flushed, and she was noisy and troublesome and called out violently; and then would follow fits of extreme depression, in which she was completely indifferent to what was done for her, perverse, willful and apparently conscious of the trouble she was giving, but choosing to pass her urine and fæces in bed. At the professional visits she could rouse herself and answer questions rationally, though not always correctly; afterwards she would ramble and mutter incoherently. On one occasion she cried when asked about her baby; on another she denied ever having had one.

On Nov. 9th and 10th the temperature rose to 101° and 101.8°, and on the 11th it ranged between 98.4° and 101.8°. It never reached 102°.

Rarely she enjoyed her food, and went twenty-four hours with-

out vomiting. By ophthalmoscopic examination, the left optic papilla was found to be redder than natural, and the veins were rather swollen, but there was no effusion.

Towards the end of November the periods of mental excitement became fewer, and she remained perfectly passive, absolutely demented. On the 28th she was violently convulsed; the fit lasted half an hour, and was succeeded by rigidity of the legs which did not pass off for some hours. During the seizure the pupils widely dilated. A comatose sleep followed, and on awakening she was more rational, and for several days after there was less vomiting. Urine, sp. gr. 1032, with traces of bile and albumen, but no sugar.

On Dec. 2d she lay huddled up in bed like an ordinary case of dementia, quite quiet, and appearing to suffer pain in the neck when moved. Pupils dilated, face flushed; pulse very feeble, regular; temperature normal. The right optic papilla was hyperæmic; the left was ill-defined at the margin, and the adjacent retina was hazy. There was also some disturbance of the choroidal pigment.

On Dec. 8th at 3 p. m., she had a severe rigor, during which the axillary temperature was 98.5°; pulse 136. No reactionary fever followed. She daily grew feebler, but did not exhibit any signs of paralysis, and could turn herself in bed up to the last. She died quite suddenly on Dec. 16th.

*Necropsy* (Dec. 17th).—Thoracic and abdominal viscera all healthy, except the liver, which was slightly fatty, and the gall bladder contained four gall-stones. Head: The skull-cap was somewhat adherent to the dura mater about the Pacchionian glands and in one or two other places. The pia mater over the base of the brain was thickened and opaque, and the veins were swollen. The convolutions of the hemispheres were flattened. The pia mater, lining each side of the Sylvian fissure, on both sides was adherent, as was also the adjoining surfaces of the two cerebral hemispheres, preventing a proper view of the corpus callosum, without forcible separation. The lateral ventricles, the third ventricle, and the aqueduct of Sylvius were all widely dilated, and contained a slightly turbid serous fluid. The choroid plexuses were collapsed. The lining membranes of the ventricles were opaque, the opacity extending down into the fourth ventricle, and

then to the space between the peduncles of the crebrum. At this spot, a dense opaque membrane, continuous with the pia mater, abruptly closed the passage, so that the intra-ventricular fluid was cut off from its normal communication with the spinal arachnoid channel. Thus a false membrane, the product of chronic meningeal inflammation, extended from the posterior part of the median lobe of the cerebellum to the posterior pyramids of the medulla oblongata, and blocked the natural passage by which the cerebral and spinal subarachnoid fluids intercommunicate. As a result of this, the ventricles of the brain were dropsically distended, and the convolutions flattened from compression. No tubercle or appearances at all resembling it were discoverable on the pia mater, or on the walls of the smaller arteries.

The brain is preserved in the hospital museum.

The question is, Did the chronic meningitis depend upon and originate from the injury received at the fall four years before?

CASE II. *Fall on the Back of the Head, followed Four Months after, by Cerebral Symptoms; Death.*—John A., aged sixteen, a fairly nourished, but pale, lymphatic lad, with a vacant, half-imbecile expression, was taken to the hospital by his mother on July 10th last. He cried and sobbed in a frightened, child-like manner, and seemed intellectually degraded. His skin felt hot, dry and desquamating; his tongue was moist and a little furred; pulse 108, regular and small; respiration about 20. The temperature would be normal or below normal in the morning, but suddenly rise to 102° between 2 and 8 p. m. He walked up stairs, but stood like a person weak in his knees, and with his legs somewhat wide apart. He required help to undress himself, but not because of any special paralysis. The only muscle in which any impairment of power could be discovered was the external rectus of the left eye. After he was in bed he assumed the crouching attitude, lying habitually on his left side, with his knees drawn up and his hands between his thighs, as if always feeling cold.

The physical examination of the heart, lungs and abdominal organs elicited no facts indicative of disease.

The patient had enjoyed perfect health, and intellectually had been equal to boys of his own age, up to Christmas last (1878-79), when, while sliding on the ice, he had fallen down and struck the

back of his head heavily, suffering some concussion of the brain, and was laid up in bed at home for a week after the accident. He resumed his employment, however, and was able to do his work as well as before his fall up to May 1st. About this date he had a bad attack of vomiting, and since that vomiting the lad seemed to his mother to have lost all his wits, because dreamy and apathetic, and able to remember nothing properly. From May to July, the date of his admission, he lay at home in bed most of the day, vomiting frequently, but still keeping a good deal of his food down. Latterly he had troubled his family very much at night-time, waking up, screaming violently, keeping everyone awake about him, sobbing like a naughty child, and refusing to be comforted or quieted. By day he was drowsy, apathetic, slow in responding to questions, but possessed of ordinary discernment; while at night he was restless, terrified and irrational. His bowels were inclined to be costive. He had no particular thirst, and he passed an average of three pints of urine per diem, sp. gr. 1020, containing no albumen, and showing no noticeable excess of earthy phosphates.

He was ordered tepid baths, with occasional cold spinal douches; a wet rag to his forehead when his temperature was high; a grain of calomel, followed by a saline, when the bowels had been confined for forty-eight hours; a nourishing diet, but no stimulant.

Observations in the hospital entirely confirmed the account received about him. On some nights he slept pretty quietly, and others he would scream and sob and disturb the ward. He behaved like a great baby at all times, but was clean in his habits. He did not complain of much pain in his head, or appear to suffer headache, but he often asked to have his head chopped off, and was at times possessed with the idea that it was desired to chop it off.

He took very little solid food, plenty of milk and fluids; as a natural consequence, he passed large quantities of urine, 70 to 115 ounce sometimes per diem. Scybala accumulated in his colon, and required clearing out artificially once. He only vomited once or twice in July; entertained a variety of delusions; thought his bed was inhabited first by rats then by eels, and that various

animals, elephants, visited him. A restless noisy night was, however, often succeeded by vomiting on the following day.

On August 6th a careful ophthalmoscope examination was made by Mr. B. Vernon, who reported the right optic disc extremely red; left disc red, in parts ill-defined; retinal veins engorged.

About the end of August no more delusions were heard of. The temperature-chart was carefully kept from July 10th to Aug. 14th. For three days in succession the temperature would be maintained between 101.5° and 104°, then it would drop to normal or below (97.2°) for two days, and then rise again gradually each night one or two degrees until it reached 104.8°, or, as it did on one occasion, 105°. Latterly he complained more of headache; the temperature fluctuated less, and was seldom above 102° or below 99°; he became weaker muscularly; his tongue was tremulous, and although he could sit up in bed the effort to do so brought on intense pain in the head and vomiting. Tâches cérébrales were well marked.

Counter-irritation was applied over the occiput, and iodide of potassium was given internally, and chloral hydrate and bromide of potassium occasionally. In September recourse was had to hypodermics of morphia, with great relief to pain and vomiting. On September 15th it was determined to put a seton in the back of the neck. The first attempt was made with a silk thread, which was soon pulled out again. Two days later he was anæsthetized with chloroform, and a proper seton was introduced. He had scarcely recovered from the effects of the chloroform, four hours only having intervened, when he had the first of a series of epileptic fits, recurring at short intervals until death on the same evening. Death occurred ten weeks after his admission, or about twenty weeks after the manifestation of the first cerebral symptoms, and over nine months after the receipt of an injury to the head.

*Necropsy.*—The scalp and calvaria were healthy. There were many tough adhesions at the fork of the optic commissure, and a layer of lymph on the surface of the olfactory nerves and the adjacent cerebral hemispheres. The convolutions were flattened on both sides, and the whole base of the brain was covered with

tough, but not thick, deposits of lymph. The sides of both Sylvian fissures were adherent, and the cerebral hemispheres were adherent in front. The fourth ventricle was closed by adhesions, and in each lateral ventricle three or four ounces of clear serum were found. The iter was closed, but seemed not quite impervious on dissection. The brain-substance was healthy; there was no tubercle anywhere. The spinal cord and membranes were also healthy. There was no tubercle or evidence of disease in the lungs or bronchial glands. The heart and the abdominal viscera were likewise free from evidences of disease.

The following is the third, and last, case of this interesting series:

Esther S——, aged twelve, an anæmic, scrofulous, ill-nourished child, was admitted into Faith ward on March 4th, 1875. She had a vacant expression, with a knitted frontal frown. She lay curled up in bed, refused all blandishments, and pulled the bed-clothes tightly round her whenever an attempt was made to examine her. She seemed deaf, would not answer questions, and was altogether morose. She walked into the ward, and on inquiry it came out that she had always been wayward and ill-tempered. About Christmas time (1874) she fell violently on the back of her head. No notice was taken of this, but some time afterwards she became dull of hearing and appeared deaf, although she sometimes undoubtedly heard what was said; she was thought to be shamming. There was great difficulty in getting her out of bed in a morning, indeed she generally had to be pulled out. Nine weeks before admission she was confined to her bed entirely, on account of constant headache, and of aching pain—supposed to be rheumatic—in the limbs and joints. She was capricious and restless, and often moaned or cried out during the night, or when left alone. Her bowels were constipated. Ever after the fall she was, her mother alleged, an altered child, though little notice was taken of the fall at the time.

On admission, the temperature was normal; pulse 96, irregular and feeble; respiration 20. The heart's action was irregular and slightly intermittent; the impulse was normal in situation, and there was no increase of præcordial dullness. There was good resonance over both lungs; the left supra and infra-clavicular

regions were rather flat, and the breath sounds were feeble there. There was no evidence of any abdominal mischief. Lymphatic glands were everywhere natural to the touch. The urine was normal in quantity and character, but was chiefly passed in bed.

Except that she put out her tongue when asked to do so, there was scarcely any intelligent response to questions. At times she was very troublesome, and swore and made a great noise. The pupils were rather dilated, but there was no sign of paralysis of any of the ocular muscles. No ophthalmoscopic examination could be made, but it was evident from observations she occasionally made, that she could see.

She always fed with a spoon; on some days she would take a fair amount of nourishment and would be more awake, on other days she was so drowsy that she could not be got to swallow; she would even go to sleep with her mouth full of food, and had to be well shaken before she could be roused to masticate the food which perhaps was put into her mouth half an hour previously.

On March 12th she recognised her mother, and her face was flushed with excitement at the visit. Temperature 101.2°; pulse 84. The bowels had not been open for three days. She had vomited only once since admission. The eyelids were half closed and she groaned and occasionally screamed out.

On the 16th she stared about wildly, picked her nose, rubbed her forehead, pulled out her eyelashes, and moaned whenever she was disturbed. Pulse irregular, 108 to 120. After this she became gradually feebler and more soporous, and for the last few days of her life had to be fed by enemata. She died on March 21st, seventeen days after admission, or three months from the commencement of the symptoms.

At first a mixture containing ten grains of chloral hydrade and of bromide of potassium was given every six hours, but this was discontinued after the second day, after which the treatment became purely expectant.

*Autopsy* (March 22nd).—The pia mater and arachnoid were highly injected. There was some flattening of the convolutions from increase of the intra-ventricular fluid, four or five ounces of which escaped at the infundibulum just behind the optic commissure when the brain was removed. There was no appearance of

effused lymph at the base of the brain, the substance of which was everywhere sound and healthy-looking. No tubercle was discoverable in the pia mater or fine vessels. The gray substance was, perhaps, rather pinker than natural, and a tiny blood-clot, the size of a pin's head, was found in the center of the pons Varolii. The olfactory bulbs were very thin. The other organs of the body were wasted, but otherwise healthy.

*Remarks.*—It would seem that in this case, too, some false membrane or adhesion prevented the free circulation of the sub-arachnoid fluid, and led to dropsical distension of the ventricles and consequent pressure upon the brain-substance. The alleged fall or injury may or may not have been the starting-point of subsequent changes. It was attended by serious concussion, and was passed over as a trifling circumstance. The original small intellectual endowment made it difficult to fix the exact date of the perverted cerebral functions.

*Middlesex Hospital.—Case of Fracture of the Base of the Skull* (*Under the care of Mr. Hulke.*)

The following report completes the series of cases of fracture of the skull.

CASE IV. *Extensive fracture of the base of the skull by a fall upon the street pavement, probably in an epileptic fit; bleeding and serous oozing from the ear; diffuse meningitis; death on the fifth day.*—The extent of the injury to the skull in this case is remarkable, occasioned as it presumably was by a simple fall upon the pavement—not from a height; for it can hardly be reasonably entertained that the man had been struck a violent blow on the head in the open street at midday without its having been witnessed by others; the motive of theft, too, was wanting, and his character was inoffensive and good. It was ascertained that he had been epileptic for eight years, and that the injury to his elbow had been sustained in a fall about two months before the present accident. It is noteworthy, in relation to the epilepsy that no morbid appearances were visible in the brain or its membranes, which could be assigned to a date earlier than the injury for which he was admitted into the hospital. The diffuse meningitis to which his death is referable, started apparently from the

fractured pars petrosa of the right temporal bone. No explanation was found for the sudden strong spirt of blood from the ear on the fourth day; no wound of the carotis interna was found, and the cessation of the bleeding forbids the supposition of such source. The blood-pressure in the cerebral sinuses is known to be sufficient to expel their contents in a strong stream to the distance of more than one foot.

Soon after midday on Jan. 2d, a working jeweler, aged twenty-five, was found insensible upon the street pavement, a few yards distant from the door of his lodgings. The police brought him to the hospital; on reaching it he was still unconscious. Above the right ear was a small scalp-wound, not reaching the bone, in which no irregularity suggestive of fracture could be felt with the finger. Blood trickled from the auditory meatus. Over the outer border of the right orbit was a slight graze, and under the conjunctiva of the eye blood was extravasated. The right elbow was stiff, and it was discolored by an old bruise. Whilst being taken into the ward he vomited a coffee-ground-like fluid with some red blood-clots, and became conscious. In the afternoon his temperature in the armpit was 99° Fahr., and at 9 p. m. it had risen to 100°. The hair was cut, ice kept on the head, and thirty grains of compound jalap powder were given him.

On the 3d the bloody appearance of the fluid oozing from the right auditory meatus had changed to serous. This ear was quite deaf. He had had a restless night, and complained of intense headache, which was somewhat relieved by lying on the left side. The bowels not having acted, a compound colocynth pill was given, followed by a draught of compound infusion of senna, which purged him freely.

Next day the headache was still intense, and the temperature was high. Six leeches were placed on the right temple, and mercurial ointment was rubbed into both arms. The leeches were repeated later in the day.

On the 6th, early in the morning, the nurse was alarmed by the spouting of bright-red blood from the right auditory meatus. She stated that it was thrown out to some distance, and was not a welling-up or oozing; the amount was guessed at two ounces. The bleeding ceased spontaneously, and did not recur. Till then

the serous discharge noticed on the second day had persisted. Throughout this day (the fourth after the injury) his mind wandered, but in the evening when impressively spoken to he gave opposite answers. In the night he became very delirious. At 9 p. m. the temperature was 99°. At 4:30 a. m. on the 7th he was convulsed, his face was blue, and he died.

*Necropsy ten hours later.*—Weather cold; ground covered with snow. Above the right ear was the scalp wound mentioned above, one inch long. About it, and also under and in the temporal muscle, was extravasated blood. A crack, two inches long, descended vertically through the parietal into the pars squamosa. From this a fissure crossed the pars petrosa, cutting the meatus auditorius internus, and ending in the foramen lacerum posticum basis cranii. From the meatus a second crack ran forward into the foramen lacerum medias. Other cracks joining these circumscribed a lozenge-shaped piece of the upper surface of the pars petrosa, which was quite detached. On lifting this as a lid the tympanum and labyrinth were seen plugged with blood-clot. A large blood-clot, which had its source in a large posterior branch of the middle meningeal artey, was found upon the outer surface of the dura mater in the temporal region, beneath which the cerebral convolutions were flattened. In the left side of the skull, opposite to the direct injury, under the dura mater lining the pars squamosa, was a small clot, of the size of a flattened filbert. The convolutions of this temporo-shenoidal lobe were superficially ecchymosed. The basal pia mater was congested, and its web was infiltrated with a sero-purulent, opaque, yellowish fluid. On the arachnoid, over the pons and medulla, was a thin film of exudation, and the lateral ventricles contained about four ounces of sero-purulent fluid.

CASE V. *Fall off two Steps; Copious Bleeding from the Ear and other Symptoms Strongly Suggestive of Fracture of the Base of the Skull; Recovery.*—In this case the recovery of the patient gave no opportunity of verifying the diagnosis, but the occasion of the injury—a fall on the back of the head off two steps; profuseness of the bleeding from the ear, to the extent of saturating his clothes, its continuance during several hours, and its replacement by a serous oozing; the deafness, much greater than could

be fairly attributed to the rent in the membrana tympani and to the damping of the vibrations of the auditory ossicula by entangled blood-clot, and its continuance, together with the long stupor —concur in justifying the belief that here a fracture of the base of the skull crossing the left petrosal bone had occurred.

On the 20th of March, 1875, a large, heavy man, aged thirty-three, fell backwards off two steps of a doorway on to the street pavement. He was taken up insensible and brought to the hostal. On reaching it he had already so far regained consciousness that he answered when spoken to, but it was necessary to raise the voice, indeed to shout; and his reply was not always suitable to the question. When his attention was not thus roused he lay as in a deep stupor. Blood was issuing freely from his left ear, and by the amount upon his clothes it was plain that he had lost a large quantity. The most careful examination of the vertex and sides of the head failed to detect any mark of fracture or even a bruise. At nine o'clock the same evening he was still in the same stuporose state, but he occasionally tossed restlessly about and groaned. The blood still oozing from the ear was thinner and more serous. The left pupil was now widely dilated; at the time he was admitted both pupils were contracted. Not having micturated, his bladder was emptied with a catheter.

Next day oozing from the ear had ceased. The man was still very drowsy. Temperature 99.8°; pulse 80. Ice was now kept on the head. On 22nd there was extreme tenderness on and above the left mastoid process. Six leeches were put on this spot. Next day there was less tenderness and pain; less drowsy. He complained that his left ear was deaf.

On April 6th a laceration in the upper part of the membrana tympani was detected.

Three days after this note he was permitted to go home, and enjoined to report himself from time to time, which, however, he failed to do. It is believed that had he not quickly resumed work, recourse to the hospital would soon have been had for advice.

*Royal Westminster Ophthalmic Hospital.—Case of Severe Neuro-Retinitis in Both Eyes, Followed by Separation of Both Retinæ; Repeated Tappings.* (*Under the care of Mr. Macnamara.*)

For the following notes we are indebted to Mr. J. G. Mackinlay, registrar.

E. S——s, aged twenty-seven, attended as an out-patient Sept. 3rd, 1878. She had been married between five and six years, and had had three children born at full time; the eldest died in convulsions when two months old, the other two were living, and appeared healthy. She had had no miscarriages, and had always had good health. Was about six months and a half advanced in pregnancy. She stated that vision began to fail in the right eye about ten months before, and had gradually got worse. The left eye began to fail about six or eight weeks before. With the right eye she read Jaeger No. 20 with difficulty; with the left, Jaeger No. 8 at six inches; V = 20-100. On examination with ophthalmoscope the right disc could not be seen, but the vessels were visible coming out of a large dense white effusion which ran across a portion of disc obliquely, and for some distance above and below it. The left disc could be seen; vitreous hazy, and had fine movable bodies in it; no effusion of white limph on retina. No albumen in urine. Ordered mixture of per-chloride of iron with quassia.

Sept. 17th.—Condition the same. The husband attended to-day, and stated that he had a sore (for which he was cauterized) some three months before his marriage, but no history of any secondary symptoms could be obtained. The patient was ordered to continue mixture with a drachm and a half of perchloride of mercury added to each dose.

Oct. 22d.—Treatment has been continued. The upper (apparent) edge of the right disc could now be faintly seen, still there was a dense mass of white effusion over portion of disc, and a thinner extensive mass of effusion around it, and portions of vessels seen here and there plunging in and out. The left disc could not be seen; numerous small and some large floating bodies in the vitreous, and the retina was separated for about its inner fifth.

On Oct. 29th the right eye read Jaeger No. 20 at six inches,

the left eye read Jaeger No. 16 at five inches. Separation of retina was noticed to-day in the right eye for about its lower and inner fifth.

The patient did not attend between Oct. 29th and Jan. 7th, 1879, but sent for her medicine. She was confined on Dec. 13th. The labor passed off well. Child was stated to be healthy; the mother was not nursing it. She stated she had an attack of inflammation in right eye a fortnight ago; the pupil was now small, irregular, and quite immovable to light. The iris was somewhat discolored, the globe slightly injected, and especially so round the ciliary region; vision was reduced to *nil*. In the left eye the pupil was large, and acted somewhat to light; vision equals perception of light.

On January 14th she was admitted. The injection of the right globe was less; the other conditions of both eyes were unaltered. Under ether, Mr. Macnamara, with a Graefe's knife, punctured sclerotic of left globe at inner and lower part, about half an inch from margin of the cornea. No fluid escaped, and the knife was inserted about a quarter of an inch further back, and fluid (not considerable in quantity) then welled up under the conjunctiva. Mr. Macnamara then tapped the right globe with Graefe's knife, puncturing the sclerotic at outer and lower part of globe about three-quarters of an inch from margin of cornea; fluid at once welled up in considerable quantity, and Mr. Macnamara then made a small slit in the conjunctiva half an inch away from the puncture, and allowed most of the fluid (which was of a pale yellow color) to escape. In both operations the knife was slightly rotated after its entrance into the globe. The eyes were padded. No sickness after the ether.

On the 15th both globes were somewhat injected; with the left eye patient could count fingers at fifteen inches and distinguish a half-crown piece.

On the 21st July patient left the hospital. She stated that she decidedly saw better, and could find her way about the ward.

On the 29th vision in right eye was unimproved, but with left eye she could read Jaeger No. 20 at six inches. The detached retina was still seen in the same position, but not extending so far up.

On Feb. 11th the left eye read Jaeger No. 20 with difficulty at five inches. Between this date and the 25th she miscarried.

On March 4th the retina was more detached in the left eye; the separation extended over almost the whole of the inner side of the fundus. She could still with difficulty make out Jaeger No. 20. She was admitted, and, under ether, Mr. Macnamara again tapped through the sclerotic with Graefe's knife and evacuated a quantity of yellow fluid, most of which is left under the conjunctiva. There was slight sickness after the ether, and next morning the globe was much injected.

On the 11th she thought her sight was not much better. The globe was still injected. She left the hospital.

On April 8th the right globe was quiet, but was getting soft. The fundus could not be seen. Vision equal to doubtful perception of light. In the left eye the retina appeared in much the same condition as before; if anything, detachment had rather increased. Vision, Jaeger No. 20 at six inches, with difficulty. Tension of left eye normal.

On May 13th the retina was still more detached in left eye; could only see fingers move. She was admitted, and Mr. Macnamara again tapped through sclerotic as before, and evacuated fluid. There was very little injection of globe after the operation. The patient left the hospital on the 17th. V = counting fingers.

On the 27th the right globe was getting very soft. With the left she saw fingers move, and retina was as much detached as ever.

The general treatment was sometimes for weeks together the perchloride of mercury in drachm and a half doses, with iron, this being occasionally omitted for a time, and small doses of strychnine given.

*National Hospital for the Paralyzed and Epileptic.—Case of Paralysis with Wasting of One Lower Extremity.* (*Under the Care of Dr. Buzzard.*)

We saw a few weeks ago the patient whose case is here described, for notes of which we are indebted to Mr. Broster, resident medical officer. There are many points of interest in the

case, especially in reference to the question of causation and treatment of perineuritis.

Agnes P——, aged thirty-six, the mother of seven children, who had never miscarried, applied at the hospital on April 30th, 1879, on account of loss of power and wasting of the right lower extremity. She had never been strong, and about five years ago suffered from a very severe attack of neuralgia of the left side of the face, which lasted five months. During the attack she lost the sense of smell, and for two years could not discern even very strong odors. In her various pregnancies the right leg always (with the exception of the last occasion) became swollen, and required an elastic bandage. After her confinements she had felt pains shooting up from the right ankle into the knee. The pain was very severe, preventing sound rest. It usually began on the second day of confinement, and lasted ten or twelve days. In October, 1878, she lost her child, and about this time felt a pain in the right knee, of a "jumping" character, shooting up the inside of the thigh. She did not know of any cause for the pain. It got worse from day to day, causing great difficulty in going up stairs. She did not notice any swelling of the knee or leg. Rest gave great relief. The pain lasted about three weeks, and was followed by a feeling of numbness. In February this year she lost much rest in consequence of having to nurse a sick child, and then felt the old pain return in the right knee and thigh, the limb always feeling very cold. Since that time the pain has got much worse, extending up the thigh to the bottom of the back, so that she has been scarcely able to move. In March she felt that the right leg was growing weak, and that she could only move it with difficulty. She noticed also that the right knee became swollen. When she was taken to the hospital she was unable to stand by herself.

The patient was a stout, healthy-looking woman with a somewhat anxious expression of face. There was very marked wasting of the muscles in front of the thigh, and loss of power in the leg, causing the foot to drop. The knee could not be lifted, and there was no power to adduction. Some tenderness was complained of on percussion over the sacrum; there appeared to be slight synovitis of the knee-joint. The patellar tendon-reflex

was absent on the right side, normal on the left, and there was no reflex on tickling the sole of the right foot. Electrical examination showed that the irritability of the muscles of the thigh and tibialis anticus group was entirely lost to the induced current. The strongest currents were only felt as "something wet" over the skin of this extremity. On the back of this thigh a pinch could be felt, though not so keenly as on the left limb. In front of the thigh it was only recognized as touch. There was nothing whatever wrong with the left lower extremity. There was no history of, or reason to suspect, syphilis. Five grains of iodide of potassium were ordered to be to taken three times a day. In three or four days she felt much relief from pain, and within a fortnight was able to move her foot slightly in bed. On June 29th it was noted that during the last few days she had suffered from pain shooting down from the knee to the ankle. There was no alteration in the electric irritability of the muscles from what had been previously noted, but strong currents now caused a slight feeling of tingling. The power of adduction had improved. On July 1st the dose of iodide was increased to ten grains, and on July 16th to twenty grains, three times daily. On July 7th she found she could limp across the room by herself. On August 16th she said that occasionally she got a twitching along the inner side of the right thigh, and aching pain (especially in wet weather) all down the right lower limb. There were no sharp, shooting pains. She was now able to stand and walk without help of any kind, and could manage to get around Queensquare. A pinch on the front and inner part of the thigh could now be felt, but not keenly as in other parts of the body; far better, however, than when she was admitted. She recognized a touch, too, but "as though through several layers of calico." Soon after admission she had pinned some needle-work on to her knee instead of her dress, not recognizing that the pin had gone through her skin. There was still great loss of power in the anterior tibial muscles, so that voluntary dorsal flexion of the foot was impossible. The right thigh was an inch and a half, the right calf half an inch smaller than the left. She was now discharged, the treatment being continued; and when seen on Oct. 8th she could walk a

mile or two, the limb had increased in size, and she was quite free from pain. The patellar tendon-reflex was still absent.

Dr. Buzzard remarked that the symptoms of the case pointed to a perineuritis of nerves of the right lower extremity. The pain between the sacrum and the limb, and the fact that both the anterior crural and the sciatic district were affected, seemed to show that the seat of inflammation was probably high up, but whether in the cavity of the pelvis or in the cauda equina could not be decided with certainty. From the history, it looked as though the nerves might have been exposed to undue pressure from the fœtus in utero, but there was probably also a proneness to inflammation of nerve-sheaths, for the woman had suffered previously from very severe facial neuralgia. The great wasting of the limb and the absence of patellar tendon-reflex might at first appear to indicate a spinal lesion, but the fact that the mobility and sensibility were equally affected in this one limb only was sufficient, he thought, to disprove this. As regards the patellar tendon reflex, a lesion in the nerve-trunk sufficiently severe to cause great muscular atrophy and cutaneous anæsthesia, would be quite as likely to occasion its disappearance as a lesion of the grey matter of the cord. The electrical reaction, too, might equally depend upon a lesion of the nerve-sheath, which practically cut the nerve off from its nutritive center in the cord. The treatment adopted was directed to a supposed rheumatic condition. He did not think that the disease was of a syphilitic origin.

*County Louth Infirmary, Ireland.— Strangulated Scrotal Hernia; Rupture of the Sac and Hœmatocele; Death.* (*Under the care of Dr. Hercules Macdonnell.*)

Patrick M——, aged forty-five, an active, strongly-built man, was admitted on the 22nd of August, 1879. Five years previously he noticed a swelling in his left inguinal region, which was recognized as a hernia, and for which he subsequently wore a truss. On the evening of the 20th, when jumping from a cart, he felt a snap, and immediately experienced great pain; the scrotum grew large, and the pain increased. He was seen by

Dr. Blake, of Ravensdale, the following day. An effort was made to reduce the rupture, but it proved unsuccessful.

On his admission the following morning his face wore an anxious expression. On examining the scrotum a tense, bluish, semi-fluctuating mass was seen, measuring in the lateral circumference twenty-five inches, and from the perineum to the root of the penis twenty-two inches in circumference. The bowels had not been moved for three days. There was no retention of urine. A distinct enlargement could be felt in the left inguinal region. He was given a large soap-and-water enema and a hot bath. An incision was made into the extremity of the scrotum, and twenty-one ounces of a dark fluid evacuated. This gave instant relief. The cavity was washed out with a warm, weak solution of carbolic lotion; a linseed-meal poultice, spread on tenax, was applied with oil-silk outside. One-grain doses of opium every sixth hour were ordered, and milk and lime-water in small quantities allowed. At 8 p. m. the temperature was 99.8°, and a fair share of urine had been passed since admission.

He had no sleep that night, and had next morning some pain referred to the umbilicus. No motion from bowels; temperature 99.6°; vomited some greenish matter during the night. The œdema of penis had disappeared, as well as the redness on the right side of scrotum, but the left was very much enlarged. Some blackish matter came away on the poultice. Hernial neck now well defined; slight gurgling heard on manipulation. During the day no flatus or fæces passed; the vomiting was frequent and large in quantity, but not stercoraceous. In the afternoon he was given a long bath at 100° F. Half a grain of morphia was injected subcutaneously, and the operation for the division of the stricture was commenced, ether spray being used. No difficulty was experienced in reaching the sac, which was found very much thickened. On opening this the intestine was found to be bluish and congested, but not gangrenous. The stricture was relieved, but considerable and unaccountable difficulty was found in returning the intestine, of which there were three large loops down. The patient was removed to a warmed bed, some slight timulant given, and warm jars applied to the feet. Antiseptic dressings were applied. At 11 o'clock the patient complained of

feeling sick. Some flatus escaped, and during the act of vomiting he fell back in the bed, dead.

He was quite cheerful a few moments before, and complained of no pain.

*Necropsy twelve hours afterwards.*—Rigor mortis well marked. Penis and scrotum discolored, also left iliac region. On removing the silver sutures and prolonging the incision downwards, laying open the scrotum from apex to base, about a teaspoonful of dark-colored fluid escaped. The sac of the hernia was adherent to the tissues for a great part of its extent. The testicle was smaller and softer than normal. At the lower and back part of the sac, where it began to be reflected forwards, was a rent, extending for about an inch in a horizontal direction, of a lacerated description; this was sufficient to account for the hæmatocele, and also for the difficulty experienced in returning the hernia when the structure had been fully divided, a knuckle of intestine having passed through this rent in the sac. The filling up of the scrotum took place very quickly, and immediately on receipt of the injury.

The presence of a hæmatocele with scrotal hernia is sufficiently rare to merit notice; but the cause—viz , rupture of the sac from a violent jump—is in itself such a rare injury that a case verified by post-mortem examination is worthy of being recorded.

*Tunbridge Wells Infirmary.—Case of Membranous Laryngitis; Tracheotomy; Recovery.* (*Under the care of Mr. Rix.*)

For the following notes we are indebted to Mr. John Footner, F. R. C. S., house-surgeon.

E. D——, aged five years, was admitted May 13th, 1879, suffering from stridulous dyspnœa and sore throat, with a moderate amount of fever.

Her sister had been taken ill with similar symptoms two days previously, and died the second day of the disease. On admission, the patient was seen to be a rosy-cheeked child, very healthy looking and well nourished. Her pharynx and palate were congested, and tonsils much enlarged. There was no trace of false membrane anywhere visible. Respiration was performed with difficulty, stridulous, and much accelerated, 48 per minute. Pulse 168; temperature 100° Fahr. There was no cyanosis.

She was placed in a room the air of which was moistened and warmed by steam to a temperature ranging from 70° to 76° Fahr., which was maintained throughout her illness.

Mr. Rix ordered half a grain of calomel to be taken every four hours, and also a mixture containing antimony and ipecacuanha. No improvement in the patient's state took place, and on the following day, as the dyspnœa had become very urgent, and she was much cyanosed, chloroform was administered, and tracheotomy above the isthmus of the thyroid body was performed by Mr. Rix, and a silver tube introduced. Immediately after the operation the dyspnœa was greatly relieved, and the cyanosis gradually disappeared. A good deal of mucus was expelled through the tube just after the operation, but no trace of any false membrane. Patient passed a fairly quiet night, but coughed up a good deal of mucus through tube. Next day the respiration was much quieter than before, but still it was much accelerated, 34 per minute. She took liquid nourishment well. Antimony discontinued.

On the 17th she coughed up some small pieces of tough leathery false membrane through tube. Cough rather frequent. Lung sounds, clear. Small pieces of false membrane were coughed up during the two following days.

On the 18th the calomel was ordered to be given every eight hours, and on the 21st it was discontinued. The wound round tube looked sloughy and very unhealthy. The child could not swallow perfectly; on attempting to swallow some milk most of it regurgitated through tube and anterior nares. Respiration still very quick, 44 per minute. The lung sounds were perfectly healthy. She had rapidly become pale and emaciated.

On the 22nd the tube was removed in the morning, but it was found necessary to replace it at night owing to increased dyspnœa. While the tube was out, the dysphagia still remained, although the aperture in the neck was closed by the finger during deglutition.

On the 24th a small quantity of albumen (1 in 7) appeared in the urine. The temperature, which up to this time had fluctuated between 101° and 102° F., sank to 100°; respiration 30 per minute. The patient was allowed a boiled egg and bread and butter, which she swallowed well.

On the 26th temperature was normal, and the patient was much better. The urine still contained a trace of albumen. Deglutition was performed more easily, and rapidly improved after this date.

On the 29th the tube was removed. From this time the patient began to regain her health and strength. The steam was gradually dispensed with, and she was allowed solid food.

On January 7th she got up and was removed into a large ward amongst the other patients.

Her convalescence was retarded by a mild attack of tonsillitis and bronchitis, which subsided under appropriate treatment.

She was discharged from the infirmary cured on July 7th.

*Remarks.*—This case presents most of the symptoms of diphtheria—a disease from which, as is well known, tracheotomy does not, as a rule, afford much hope of recovery. The persistent high temperature, ranging from 101° to 102° during a period of thirteen days; the presence of albumen in the urine, though only during a short period of four days, and the dysphagia; the rapid change from a fat, rosy-looking child to a pale and emaciated one (very probably caused by the calomel); the fact of her sister having been taken ill two days previously with similar symptoms, and the rapidly fatal termination; the expulsion of pieces of false membrane through the tube—all point to diphtheria; but it must be added that there was no enlargement of the glands at angle of jaw, nor was any false membrane visible *in situ*. Tracheotomy was performed early in this case, which, perhaps, may have contributed a good deal towards the patient's recovery.

(From the *London Lancet.*)

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WE hope to present to our readers in our next issue, notices of the medical college commencements, which have been and are still to be held in this city, with lists of the graduates of each. The proceedings of the various alumni associations, and of the Cook County Hospital Association, will also be then reported in full.

# Summary.

## PHYSIOLOGY.

ON THE ELIMINATION OF PHOSPHORIC ACID IN HERBIVOROUS ANIMALS.—By Bertram, in *Zeitschrift f. Biol.*, Band. XIV, Heft. III, 1878. (*Revue des Sc. Méd.*, July, 1879.)

Whilst among carnivorous animals the greater part of the phosphoric acid taken into the system is eliminated by the urine, among the herbivorous animals it is excreted almost wholly by the intestines. Liebig attributes this fact to the existence in the urine of the herbivorous animals of large quantities of carbonates, and the consequent insolubility of the acid phosphates.

Bertram has made, relative to this subject, experiments on herbivorous animals and on man. He has established, in fact, that among the herbivorous animals the phosphoric acid is eliminated with the fæces and not with the urine; but when a considerable quantity of acid phosphate of potash is added to the normal food, phosphoric acid appears in the urine, and that even to a marked degree. This does not take place, however, if the acid combines with calcium. In fact, calcium is always deficient when the urine is abnormally charged with phosphoric acid, and further, the ingestion of heavy doses of calcium salts causes the disappearance of the phosphates. Magnesia does not exert a like action. It follows, then, that the absence of the acid phosphates in the urine of the herbivorous animals is due to the richness of the vegetables in calcium salts.

In man the citrate of potash diminishes the proportion of the acid phosphates to a small degree; the citrate of calcium to an extent much more marked. The elimination of the acid phos-

phates becomes still less when to the citrate of potash the bicarbonate of calcium is added.

NORMAL REACTION OF SWEAT.—(*Pflüger's Archiv*, xviii. p. 494; *Centralblatt f. die med. Wiss.*, May 17, 1879.)

Trümpy and Luchsinger have been recently engaged upon a series of investigations to decide whether human sweat normally possesses an acid reaction. Luchsinger observed some time since, in the course of his experiments as to the existence of a distinct sweat center, that the secretion obtained from the paws of cats was alkaline, and not, as usually stated, acid. The skin covering these parts contains no sebaceous but only sweat glands, and from this fact the authors draw the conclusion that the sweat is usually alkaline, and that its acidity is due to the admixture with the free fatty acids present in the secretion from the sebaceous glands. This conclusion has lately been verified in respect to man. If the skin be carefully washed, and a secretion of sweat be then produced, either by means of warm baths, or by the injection of one-tenth gram of hydrochlorate of pilocarpin hypodermically, the sweat is at first alkaline, though occasionally it is acid, becoming alkaline when the secretion has continued for some length of time. The sweat secreted from the palm of the hand is always acid, although true sebaceous glands are absent; but it becomes alkaline even here when the secretion is prolonged. The sweat glands appear to perform the function of sebaceous glands in this part. A comparison is drawn between glands on the palm of the hand and those found in the ear. Those glands, dependent upon degenerative processes, normally decline upon the induction of a free secretion of sweat.

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## PRACTICAL MEDICINE.

TREATMENT OF TYPHOID AND OF TYPHUS BY THE DOUCHE.—(*Le Progrès Médical*, Sept. 20, 1879.)

M. Marcowitz of Bucharest communicates to the International Medical Congress at Amsterdam the results of his observations in regard to the treatment of typhoid and typhus by the douche.

The conclusions at which he arrives are: 1. The douche allows of the regular method of refrigerant treatment of 12.15 severe typhoid cases (allowing two to seven or eight douches for each patient) according to the tendency that the temperature has to return to the same point as before the application, without occupying more than two or three hours a day. 2. The patient is more thorougly roused by the douche than by the cold bath, and is due as much to the shock, which acts reflexly upon the nervous centers regulating the heat supply and preventing their paralysis for some hours at least, as to the actual withdrawal of heat. 3. In regard to contra-indications, M. Marcowitz is able to state with Liebermeister that scarcely anything but intestinal hæmorrhage, and a great paralysis of the heart, accompanied by a small and feeble pulse is absolutely opposed to the administration of the douche. 4. Pulmonary congestion, so long as it does not depend directly upon cardiac paralysis, is to be regarded rather as an indication than a counter-indication for the use of the douche.

TREATMENT OF SUB-ACUTE AND CHRONIC DYSENTERY BY IPECACUANHA AND BISMUTH INJECTIONS.—(*The Lancet*, Oct. 4, 1879.)

Dr. Houghton has resided in Sarawak, Borneo, for the last sixteen years, and has held during that time the appointment of principal senior medical officer to the government hospital, where malarial fevers, dysentery, and all endemic tropical diseases, are admitted into the medical wards. He has found, after a very large experience, that besides general treatment local applications in subacute and chronic cases of dysentery, by bismuth injections into rectum, have succeeded wonderfully, and that a great many hopeless chronic cases have been in this way relieved. The subnitrate of bismuth, to the extent of half a drachm, is to be rubbed down with the same weight of powdered gum in two ounces of cold water, and the resulting solution is to be injected from one to three times a day, according to the severity of the case. It is essential that the enema should be retained. The severe tenesmus and tormina will thus be relieved in a very short time. Ipecacuanha will of course be given, preferably in

doses of one scruple to one drachm, at intervals of eight to twelve hours, according to the case, when the rectum symptoms are urgent. Bismuth is a most effectual remedy, and the clinical records of some hundreds of cases speak most highly of its effect.

THE EARTH TREATMENT OF ABDOMINAL TUMORS.—(*The British Med. Journ.*, Sept. 27, 1879.)

Dr. Addinell Hewson, of Philadelphia, has successfully treated by earth-dressing several cases of abdominal tumors, where either ovariotomy has been indicated, or when the case has been considered hopeless. An account of his proceedings may be found in No. 1 of the *Medical Bulletin*, published in Philadelphia. The material he used was pure brick-clay of a yellow tint (due to the iron in it) and free from sand and grit. This was dried by a low fire or in the sun, care being taken not to let it be roasted, because in such a case its therapeutical action was destroyed. It was then rolled and sifted, and about a pound and a quarter mixed with sufficient water to constitute a thick paste was spread all over the affected part. To make it dry quickly he laid a towel over it to absorb the water: the towel was then removed, and in its place a layer of cotton-wool was smoothly spread on the paste for the purpose of hastening the drying, and of holding the clay when dry, in its place. The dressing was then completed by a simple bandage, and allowed to remain till it would fall off in from two to five days. He attributes the action of the earth to some chemical property, which also has a calming influence on the pain. One of his first patients was a gentleman who was suffering from abscesses and diffuse inflammation of the cellular tissue of the knee, and had made up his mind to have his leg amputated. He recovered the use of his limb and was completely cured. The other patients who derived benefit from his treatment were all women suffering from tumors of the uterus and broad ligaments; one of them had narrowly escaped ovariotomy. Another had for years suffered severe pain during the catamenia, caused by a fibro-cystic growth which involved the right ovary. In a third case, the patient had previously undergone ovariotomy, and induced electricity had been applied

through the uterus. The tumor grew again after the operation, and proved to be in reality a fibrous tumor of the uterus; there were besides several points of hernial protrusion of the bowels, on the spot of the wound, and she had the appearance and size of a woman at full term. The earth-dressing was applied under very unfavorable circumstances, but still proved successful, reducing her in size and preventing the hernial protrusions of the bowels by contracting the cicatrix.

MEDICAL TREATMENT OF HÆMORRHOIDS.—(*The Virginia Medical Monthly*, August. 1979.)

Dr. E. T. Sabal submits to the Medical Brief for August the following:

℞ Iodoform (℥i), 4 grams. Powder very fine in a mortar, and add
Pulv. opii (grs. xv), 1 gram.
Vaselin (℥i), 4 grams.

Mix. Apply locally morning and night and after every action of the bowels, after first washing with warm and cold water. One drachm of tannin may also be added to the above to deodorize the iodoform. Keep the bowels open by the following formula:

℞ Magnesiæ sulph.
Magnesiæ carb.
Sulphur. præcip.
Sacchar. lact. āā. (℥ss), 16 grams.
Pulv. anis. (℥ij), 8 grams.

Mix. Dose, one or two teaspoonfuls mixed in water at bed-time.

TREATMENT OF DYSENTERY BY RECTAL INJECTION.—(*The Lancet*, Oct. 18, 1879.)

Dr. King, commenting upon this method of treatment, which has been lately recommended by Dr. Houghton, remarks that in a large proportion of cases the dysenteric mischief is situated at the lower part of the colon and rectum, and local treatment is therefore of importance. In such cases benefit ensues as a result of directly curative measures; but even when the chief site is higher up, the effort to soothe the mucous membrane of the rectum, and allay spasm of the sphincter ani, amply repays the

attempt by affording rest not only to the diseased bowel, but to the patient generally. The attainment of this object is frequently much assisted by the action of bismuth used per rectum. The remedy may be given as an injection, merely suspended in mucilage in the case of children, and in adults where opium is being administered by the mouth, or forty grains may be combined with half a drachm of tincture of opium, and if intolerance of ipecacuanha by the mouth is encountered, two scruples of this drug may be added. In either case the bowel is to be washed out in as gentle a manner as possible with lukewarm water, the object being to simulate the soothing process of fomentation; to procure, for contact with the drugs, a clean surface; and finally to diminish the chance of loss of injection by overcoming beforehand the spasm produced on the first introduction of the tube. The cleansing, if carefully done, is not injurious, but proves of the greatest utility by removing mucus and irritating secretions, which, by their presence, excite tenesmus, a result analogous to the cessation of pain which may be witnessed after removal of a plug of tenacious mucus from the os uteri in chronic metritis. Bismuth and opium injections have also been found useful after the employment of injections of nitrate of silver.

ON THE TREATMENT OF DIPHTHERIA.—(*The Glasgow Medical Journal*, October, 1879.)

Dr. Diamond concludes that the exhausting nature of diphtheria is generally granted, and that stimulants and support are required from the very commencement, whilst depressants and depletion are entirely contra-indicated. A large proportion of the profession advocate the non-interference theory, whilst others again adopt an entirely opposite view in regard to treatment; the great majority adopt a middle course, however, and seek to destroy but not to remove the false membrane. For this purpose all sorts of caustics and disinfectants, from the ancient nitrate of silver to the modern salicylic acid, have been recommended. These remedies, however, have, according to Dr. Diamond, for the greater part, one objectionable feature in common. They are nearly all poisonous, and cannot be swallowed with safety; or if innocuous, they are apt to be powerless. On the whole he pre-

fers the tincture of perchloride of iron, either of full strength or slightly diluted with glycerine. He is also strongly of opinion that the false membrane should be destroyed, and if possible removed. In regard to tracheotomy, no opinion is offered, but Dr. Diamond suggests that when it has to be performed, advantage should be taken of the opening to clear away the membranes from the larynx and trachea, and to disinfect their seat.

THE TREATMENT OF PARALYSIS AGITANS.—(*Le Concours Médical*, Vol. i., No. 1, July, 1879.)

M. Hammond applies a continuous current to the spinal cord, great sympathetic, and muscles affected by this disease; at the same time he administers strychnia and phosphorus according to the following formula: Phosphate of zinc 0.15; extract of nux vomica 0.30; conserve of roses q.s. To make thirty pills. A pill to be taken twice a day. This treatment is furthered by a tonic regimen, and the avoidance of all mental or physical excitement. Hammond has had six cases of this nature, of which four were cured within two months. Trousseau had already recommended the use of strychnia alone in this affection. Prof. Charcot had tried various medicines, and amongst others, nitrate of silver, all of which he found to be useless, and he confines himself to the recommendation of continuous currents. The following rules should, according to Dr. Onimus, be attended to, whilst employing continuous currents: The upper part of the spinal cord should be first stimulated with a sufficiently strong current; the negative electrode being placed at the base of the skull, the positive one upon the cervical vertebræ, and superior cervical ganglion. If the paralysis is limited to the upper limbs, the positive electrode should be applied to the brachial plexus for a part of the sitting, the negative pole being left in its original position.

A PECULIAR AFFECTION OF THE GAIT IN HABITUAL DRUNKARDS.—(*Charité Annalen*. iv. Jahrgang; *Med. chir. Rundschau*, June, 1879.)

Dr. Westphal has observed a peculiar form of the disturbance of gait in cases of chronic alcoholism. The affection bears certain

resemblances to that occurring in tabes, from which, however, it may be readily differentiated. The peculiarity consists in the fact that at every step the limb is raised very much from the hip-joint, whilst the lower part of the leg remains bent, and then falls as if in the act of stamping. This affection cannot be mistaken for that arising from paralysis of the peroneal muscles, as the characteristic dependence and dragging of the foot is entirely absent. In tabes, on the other hand, the extension is made at the knee. In the disturbance of gait here alluded to there is entire absence of any ataxy of the lower extremities in the dorsal region: the sensibility remains intact in every form, and the tendon reflex is present to the ordinary extent. It is remarkable that after taking alcohol the disturbance of gait is lessened for a short time. Dr. Westphal explains the affection as due to painful sensations of cramp in the calf and in the knee-joint.

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## THERAPEUTICS.

THE TOPICAL USES OF ERGOT.—(*The American Journal of Medical Sciences*, July, 1879.)

Dr. Dabney has used ergot in cases of pterygium with decided benefit, and has obtained excellent results from its application in pharyngitis. In the latter affection it is of especial use when the blood-vessels of the pharynx are enlarged and tortuous, and when the secretion is not very great. In those cases where the mucous membrane is thickened it acts much more slowly, and in acute cases it possesses no advantage over other remedies. In affections of the pharynx a combination of ergotin with tincture of iodine, as in the following formula, is especially efficacious: Ergotin, grs. xx.; tinct. iod. f. ʒj.; glycerine to make f. ʒj. m. To be applied to the pharynx freely twice a day with a camel's hair brush. In hypertrophy of the tonsils, which is so often an accompaniment of chronic pharyngitis, the same solution applied to the glands two or three times a day gives excellent results. In cervical metritis the following is serviceable: Ergotin (or solid extract of ergot) grs. xx.; extract of belladonna, grs. ij.; cocoa butter q.s. M. Make into six suppositories, and insert into the vagina every

night after using the hot douche. In warm weather a solution of ergotin and extract of belladonna in glycerine and water may be used in place of the suppositories, as in the following formula: Ergotin, ʒss.; extract of belladonna, grs. vj.; water and glycerine āā. f. ʒiv. m. A pledget of cotton is to be saturated with this solution and inserted into the vagina at bed-time after the hot douche. The cotton should of course be removed in the morning.

THE PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS OF SALICYLIC ACID AND ITS COMPOUNDS.—(*New York Med. Journ.*, July and August, 1879.)

In an interesting paper, Dr. Moore sums up the recent advances in our knowledge of the physiological and therapeutic effects of salicylic acid. *In rheumatism* (1) its most beneficial effects are manifested in the more acute cases. In subacute cases there is less, and in chronic cases no advantage from its use. (2) It should be given in doses of not less than twenty grains, every two hours to an adult. (3) Its use should not abruptly terminate on the subsidence of the pain and fever, but the interval between the doses should be more and more prolonged. (4) By its employment "rheumatic fever" may, in the majority of cases, be made a disease of hours, instead of months, as it was formerly. (5) By the brevity of the febrile condition, the chances of the occurrence of cardiac complications are immensely diminished. *In typhoid fever* it is found (1) that salicylic acid and its salts have a decidedly beneficial effect in reducing the temperature, and therefore in decreasing the mortality. (2) That its tendency is to shorten the duration of the disease by its antiseptic properties. (3) That the salicylate treatment is equal to any other antipyretic form of medication. (4) That there is every reason to suppose that the salicylates, combined with the cold water treatment, would excel all other methods. (5) That a large dose of one drachm of salicylate of soda acts better given at once than in divided doses. Such a dose is sufficient for twenty-four hours. *In diphtheria* salicylic acid is a valuable agent, since it not only acts as an antiseptic, but also favors the exfoliation of the membrane from the throat by increasing the secretions behind it, and thus tearing it off.

It may be used either as a gargle or internally, or in both ways. It may also be employed beneficially in the form of spray, using a solution of the acid in alcohol and water, three grains to the ounce of fluid. The internal use of the salicylate should also be insisted upon. *In diabetes mellitus* the salicylate of soda given daily in doses of one hundred and twenty grains determines a decided diminution in the sugar excreted. The diminution of the saccharine element is liable to considerable variation, according to the class of case, but it is more remarkable by the greatest restriction of carbohydrates in the diet. Diminution in the quantity of urine is parallel with the diminution of sugar. Salicylic acid and its compounds have also been used with more or less success in the following diseases: Small-pox and scarlatina; dilatation of the stomach, mycosis œsophagi; yellow and intermittent fevers; pertussis; rheumatic iritis; neuralgia; dysentery; in ear diseases; pyæmia, erysipelas, surgical fever, etc.; and as an anaphrodisiac, in addition to its use in surgical practice.

THE ACTION AND USES OF HYOSCYAMIN.—(*The Lancet*, September and October, 1879.)

Mr. Prideaux analyses the various papers which have appeared upon the action and uses of hyoscyamin, the active principle of hyoscyamus. This substance, which was first obtained in 1873, is most reliable when it has been obtained as an extractive from the leaves. In its effects hyoscyamin approaches very closely to atropia. The ingestion of a small dose is followed by a reduction of the pulse-rate, accompanied by increased strength and a diminution of the respiratory act. An almost immediate quickening of the pulse-rate, with coincident central excitement, then occurs, followed by motor paralysis, and by loss of power over the co-ordinating centers, as shown by affections of the speech and vision. An hypnotic stage of greater or less duration then follows. Accompanying these symptoms there is always great dilatation of the pupil, hypermetropia, and dryness of the throat and skin. The drug is excreted by the kidneys, and to some extent by the intestinal canal. Death ensues in animals after large doses, through failure of the respiratory center, the heart's action continuing for a few seconds after the cessation of respiration. After

a poisonous dose of hyoscyamin, the symptoms observed are: a great acceleration of the heart's action, steady fall of temperature, and rapid diminution of the respiratory movements, dependent probably on paralysis of the vagus nerve. In man, hyoscyamin acts as an hypnotic, producing sleep, sometimes of considerable duration, particularly in conditions of the brain where there is great excitement, as in mania, delirium tremens, meningitis, and where ordinary hypnotics, such as opium, are inadmissible; and others, as chloral, have failed or exhausted their effect. In acute mania, with a greatly impaired condition of bodily strength, a small dose (one-sixteenth of a grain) will produce a most marked action, and this is also the case in the excitement of senile dementia; whilst in the excitement of chronic mania large and frequently repeated doses are required to produce any effect. In the use of the drug the bodily condition of the patient must always for this reason be borne in mind. In chronic mania with exacerbations, hyoscyamin is very useful, cutting short the exhibitions of temper and excitement of a violent and destructive character. These cases, as a rule, require only one dose, and that a large one, viz., half a grain, or even one grain, to effect any good. In conclusion, Mr. Prideaux sums up the results which he has obtained by the use of hyoscyamin in the following words:

1. In most cases of mania, or where there exists great excitement of any aggressive or destructive character, or rapidity of movement and speech, the use of the drug is the most effectual and rapid means of exercising that form of restraint which has been known as "chemical restraint."

2. That in cases of acute mania it will produce sleep and quietude when all other drugs have failed, and is one of the most rapid and reliable narcotics which we possess.

3. That in the treatment of the epileptic status in epileptic mania it diminishes the number, frequency, and severity of the attacks, especially if its administration be extended over some time.

4. That in delusional insanity, especially in the mania of suspicion, and in other forms of mania where the delusions are varying and changeable, it has a decided action in producing

such an altered condition of the cerebral status that a condition which has been termed "physiological mania" results, and this so eclipses the former delusions and hallucinations that they are forgotten and the mind becomes clear; while, if the subjection to the influence of the drug be continued, it ultimately leads, under favorable circumstances, to a permanent condition of quiescence, and restoration to a healthy state of mind.

5. That in chronic dementia, associated with destructive tendencies, bad habits and sleeplessness, the condition of the patient much improves after a continued course of small doses of the drug.

The disadvantages that have occurred from its use, and which have to be guarded against, are: the dryness of the tongue and pharynx that occurs, especially after a prolonged administration. This has been thought to contra-indicate its use in cases of artificial feeding, but provided the tube be dipped into an oily liquid before passing, I have not found it any inconvenience. The attacks of vomiting that have occurred, in some cases after administration for some weeks, necessarily leads to discontinuance of the drug. Vomiting occasionally occurs after one dose, even a small one, and in two cases mentioned by Dr. Lawson hæmatemesis took place. Where rapid and sudden action of the drug is feared in feeble cases, it is better to administer it with the food.

THE POISONOUS PROPERTIES OF CARBOLIC ACID.—(*Le Progrès Médical*, October 4, 1879.)

M. Binnendik read a paper before the Pharmacological section of the International Medical Congress recently held at Amsterdam, in which he discussed the poisonous properties of carbolic acid. The conclusions arrived at are: (1.) That pure carbolic acid is a poisonous substance which acts directly upon the cerebro-spinal nervous system, first stimulating and finally paralysing it. It does not appear to exert any influence upon the blood. Hæmoglobin however may often be detected in the urine for a short time after intoxication has been produced. (2.) The absorption and elimination of carbolic acid occur rapidly. The poisonous symptoms are developed very soon after the introduction of

the acid, and they disappear before the whole quantity has been eliminated. Under favorable conditions, as after subcutaneous injection, or administration upon an empty stomach, the elimination is complete in twelve or sixteen hours. (3.) Carbolic acid undergoes a change in the organism. It forms complex chemical bodies, such as compound sulphuric ethers of phenol, hydroquinon, and the pyrocatechin of Baumann, which are of a less poisonous nature than the pure carbolic acid. A portion is also in all probability oxidized. (4.) Glycerine added to aqueous solutions of carbolic acid diminishes the poisonous effects in rabbits. It has not yet been determined, however, whether the glycerine acts by retarding the rate of absorption, or whether its modifying action is due to other circumstances.

HYPODERMIC USE OF COLCHICIN IN RHEUMATISM.—(*Berlin klin. Wochensch*, No. 26, 1879; *The New York Medical Journal*, June, 1879.)

The solubility of colchicin in water renders it very applicable for hypodermic use. Dr. Badia, a Spanish physician, has communicated a number of successful results after its employment in this way in chronic rheumatism, and these have induced Dr. Heyfelder, of St. Petersburg, to try it in a series of cases. The results were, on the whole, surprisingly gratifying. The remedy was tried in rheumatic joint affections, neuralgias of the same nature, and especially ischiagra. Two milligrams were injected, in one gram of water, and the action was often remarkable, the severe pain becoming much lessened, and the movability of the affected articulation being rendered much freer. In a case of chronic articular rheumatism of the lower extremity which had existed for years, a surprising result was obtained by daily injections for ten days. There was freedom from pain accompanied by greatly increased mobility; and a relapse having occurred, a similar result was obtained by a single injection. In rheumatic ischiagra, the remedy had generally a very pronounced effect in relieving pain. The first result of the injection is a severe burning pain, which rarely lasts more than half an hour. In about one-third of the cases there was a local inflammatory reaction of varying degree at the place of injection. In very

few cases was there any considerable swelling or tenderness. Increased diuresis and strangury were noticed in a few cases. In persons with very sensitive skins it is advisable to use the remedy with great caution, and to diminish the dose. Where local inflammatory phenomena are present, the remedies should be discontinued, or applied at some distance.

TREATMENT OF DIPHTHERIA WITH BENZOATE OF SODA.—(*Berliner klin. Wochenschr.*, No. 7, 1879. *Cbl. f. med. Wiss.* Aug. 9, 1879.)

Dr. Letzerich has employed benzoate of soda in severe cases of diphtheria, as is recommended by Prof. Klebs. The dose administered to children under twelve months was a teaspoonful hourly of a five per cent. solution, for children of one to three years the same quantity of a seven-eighths per cent. solution, whilst to still older children, eight, ten and fifteen grams were given, adults receiving as much as fifteen-twenty-fifths grams a day. In no case did any untoward symptoms present themselves. The diphtheritic membrane was powdered with sodium benzoate, the local application being made every three hours in severe cases, and two or three times a day in less urgent ones. In every case the febrile symptoms were checked in from twenty-four to thirty-six hours, the temperature returning nearly to the normal. Dr. Letzerich recommends the employment of this remedy in catarrh of the stomach and intestines, especially in unweaned infants, in whose cases he has employed it with marked effects. It is also beneficial in mycotic catarrh of the bladder.

PECULIAR EFFECTS PRODUCED BY THE ADMINISTRATION OF HYDROCHLORATE OF MORPHIA.—(*British Medical Journal*, Oct. 18, 1879.)

Mr. Courtenay publishes the following case, which presents two interesting features:—1. The development of peculiar symptoms from the administration of morphia; 2. The marked physiological antagonism of belladonna to morphia, proved by the power of the former drug to speedily relieve the ill effects of the administration of the latter. A male coolie, under treatment for lumbago in the Lucea Parochial Hospital, Jamaica, was

ordered a hypodermic injection of one-sixth of a grain of morphia, the injection to be repeated every night. This treatment was continued for three nights, and on the morning following the third use of the injection the patient complained of feeling unwell at breakfast, and retired to bed at 9:10 a. m., when he was siezed with convulsions of a tetanic nature. His symptoms were the following: He was quite insensible; his eyes were widely opened and staring, the pupils slightly contracted; teeth clenched, face flushed, nostrils dilated, and breathing hurried. There was spasmodic contraction of the muscles of the upper extremity; the temperature was increased, the heart's action regular, though weak. This attack lasted about ten minutes, when consciousness returned, but, on attempting to speak, he was siezed again, and the convulsions returned at gradually-increasing intervals, until they finally left him at twelve noon. The treatment immediately adopted in this case was the administration of doses of ten drops of the tincture of belladonna every hour, with coffee and brandy, and the application of the extract of belladonna down the course of the spine. This treatment was continued for a few hours, and all urgent symptoms having yielded to it, the belladonna was given in diminished doses of five drops every four hours, and continued for the two following days. At the end of that time, no recurrence of the convulsions having taken place, the ordinary treatment for lumbago was recommenced, of course with the omission of the morphia injection.

ERGOT IN THE TREATMENT OF FIBROUS TUMORS OF THE UTERUS.—(*Arch. génér. de méd.*, Nov., 1879.

A critical review on the important and pressing question as to the treatment of fibroid tumors of the uterus, recently appeared in *The Medical Times and Gazette*. In this paper Dr. Herman states that the method of administration of ergot is a point of practical importance. Hildebrandt recommends hypodermic injections of ergotin into the abdominal parietes in the neighborhood of the tumor. He believes that the drug thus administered acts more energetically than when given by the mouth, and he cites in proof several cases where the administration by the mouth failed to afford relief, whilst the subcutaneous injections were

effectual. The experiments of Peton go far to prove that ergotin administered hypodermically exerts a definite local action, which is powerful and rapid in regard to the vessels in the immediate neighborhood of the injection, but is slow and feeble in the arteries of distant parts. This method has, however, the disadvantage of being painful, and it is difficult to exert sufficient control over its administration in the case of patients who are not seen every day. The effects of the two methods only appear to differ in intensity, and Dr. Herman therefore contents himself with giving the drug by the mouth. The inconveniences attending the use of ergot depend either upon a faulty preparation or upon idiosyncracy. The choice of the preparation of ergotin or sclerotinic acid appears to be immaterial, provided that the drug is fresh and is prepared in small quantities at a time.

BODENHAMER ON RECTAL MEDICATION.—(Pamphlet. New York: W. Wood & Co.—Abstract in *London Medical Record*, August 15, 1879.)

This essay is intended to draw more attention to the important subject of the administration of food and medicines by the rectum. The method is of great antiquity, and was recommended by Hippocrates, Galen and Celsus; but it has made little progress towards perfection, and the administration of enemata of any kind is often mischievously bungled by nurses, students, and even medical men. It is apparently forgotten that foreign substances introduced into the bowel are very apt to excite expulsive action, and therefore that extreme caution should be observed. The author recommends a screw syringe, which has the advantage that the enema cannot be suddenly shot into the rectum by a careless hand. Whatever instrument is used the fluid should be gently passed in, and so slowly that the bowel may have time to accommodate itself to the presence of the enema. After the administration of a medicated or nourishing enema, should there be a strong or irresistible desire to pass it, as is the case sometimes, when there exists an exquisitely irritable state of the organ, a sponge or fold of cloth dipped in hot water, and firmly pressed against the anus for a while, will generally appease the desire, and enable the patient to retain the enema. The author collects the

opinions of some eminent men, and in the end lays down certain conclusions based upon the evidence quoted. He holds that a fuller and more rapid effect can be obtained in this way than by giving drugs by the mouth, and he points out that of narcotics the rectum only requires about one-third of the quantity necessary by the mouth. The book is an interesting contribution to practical medicine.

TREATMENT OF ASTHMA BY POTASSIUM IODIDE AND IODIDE OF ETHYL.—(*Le Progrés Médical*, Sept. 6, 1879.)

Dr. Gougeon has observed the beneficial results which occurred in certain cases of dyspnœa, after the use of potassium iodide, either alone or combined with iodide of ethyl. He has, therefore, in his inaugural thesis analyzed the works of M. Sée upon the subject. The monograph by Dr. Gougeon is a faithful and orderly *résumé* of the facts which have been observed. Every one knows how difficult it is to cure or even to benefit the majority of patients who suffer from asthmatic dyspnœa, whether the asthma be chronic or symptomatic. Many medicines have been proposed, but they have failed in their purpose, and have consequently fallen out of use. Prof. Sée, after a great number of investigations, has at last been led to adopt heroic treatment in nearly every case. He administers iodide of potassium at the outset of the disease in a sufficient dose, i. e., at least one and one-half grams, increasing it progressively to three to four grams, and only limiting the use of the drug on the appearance of symptoms of iodism. It is found that in this way alone is the action of the remedy real and effectual. In the historical part of his work, M. Gougeon shows, that before M. Sée turned his attention to the drug, it had been employed without any definite rules; and that it was the active principle in several secret remedies for asthma.

SULPHO-METHYLATE OF SODA: A NEW PURGATIVE.—(*La Praticien*, January 27, 1879.)

M. Rabuteau has investigated a new purgative, analogous to sulpho-vinate of soda. It is obtained by treating methyl alcohol with sulphuric acid, when methyl sulphuric acid and water are

obtained. This product is neutralized with carbonate of barium, when the excess of sulphuric acid is thrown down in the insoluble form of barium sulphate, and there remains in solution sulphomethylate of baryta, a substance which is very soluble, and which can be crystallized. It is then treated afresh with sulphuric acid, which liberates pure sulpho-methylic acid, which yields sulphomethylate of soda when neutralized with soda. The salt is white and very soluble, crystallizing with difficulty, of a feeble taste comparable to that possessed by sulpho-vinate of soda, with a sweet after-taste. Unfortunately it decomposes very rapidly into sulphate of soda and methylic products of a slightly garlic-like odor. Ten grams of the salt in 25 c.c. of water injected into the veins of a dog produced constipation. Acting upon the observation that the substance, when introduced into the blood, gave rise to constipation, M. Rabateau believed that it should act as a dialytic purgative when given by the mouth. He therefore administered it to two patients; in one case a woman took 15 grams in two doses, when it produced three stools, of which two were copious; in the second, a man took 18 grams, resulting in two stools without colic. The taste of the purgative is hardly perceptible, but it is difficult to preserve it.

PLEURITIC EFFUSION TREATED WITH JABORANDI.—(*The Dublin Journal of Medical Science*, Nov., 1879.

Dr. Hunt has employed jaborandi in three cases of pleuritic effusion. In the first and second of these the remedy was only prescribed after the failure of other means of getting rid of the fluid which remained in the pleura following aspiration; and there could be very little doubt that absorption was materially hastened by its use. In the third case jaborandi was the sole drug that was tried, and therefore the results cannot be so conclusive. All the patients bore the jaborandi well: one, indeed, increasing in weight whilst he was sweating profusely under its influence. In no case did it lower the general health to any appreciable extent, and with the exception of the diaphoresis and salivation, there were no inconveniences attending its administration even in the largest doses (℥jss secundis horis). In none of the cases was any beneficial result obtained until profuse diaphoresis had been excited.

## ANNOUNCEMENTS FOR THE MONTH.

### SOCIETY MEETINGS.

Chicago Medical Society—Mondays, March 1 and 15.

West Chicago Medical Society—Mondays, March 8 and 22.

### CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.

Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.

Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.

Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard; 3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Hollister.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.

Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.

Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.

Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.

Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.

Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

THE

CHICAGO MEDICAL

# JOURNAL & EXAMINER.

VOL. XL.—APRIL, 1880.—No. 4.

## Original Communications.

### ARTICLE I.

MECHANICAL THERAPEUTICS, CHEMISTRY AND TOXICOLOGY OF MERCURY. By S. V. CLEVENGER, M.D., Chicago.

All the preparations of mercury, used medicinally, may be classed as: 1, Simple mercurials; 2, Mercurous compounds; 3, Mercuric compounds; 4, Sulphur and Nitrogen compounds.

The simple mercurials depend for their medicinal properties upon the metal being finely divided, and in proportion to the extent to which this division is carried the therapeutic effects of the drug are augmented. A grain of mercury undivided has no medicinal value, but when separated into a hundred thousand globules and held by an excipient, as in blue mass, from forming large particles, the well-known effects of blue mass are obtained when taken in this form, and the more potent the pill the greater has been the division of the metal. The confections, oils, fats and other substances with which mercury in this state is blended by the pharmacist, impart nothing to it that changes its character. Though occasional oxidation may occur, it will be seen be-

low that this is of no consequence whatever. In three papers, read before the Chicago Biological Society, February 4th and March 3d, and the Microscopical Society February 27th, 1880, I detailed some experiments and observations, showing that mercury underwent no change in the system after ingestion, and that it was fully capable of producing all its therapeutical and poisonous effects by circulating in, or obstructing, the microscopic channels of the body. The first paper mentioned was published in the *Chicago Medical Gazette*, February 20th, 1880. In this article I shall endeavor to consolidate and formulate all the results obtained before and since that paper was published.

### SIMPLE MERCURIALS.

1, Pilulæ hydrargyri; 2, unguentum hydrargyri; 3, hydrargyrum cum cretâ; 4, emplastrum ammoniaci cum hydrargyro; 5, emplastrum hydrargyri; 6, unguentum hydrargyri compositum; 7, linimentum hydrargyri; 8, suppositoria hydrargyri; 9, "oleate of mercury." The first eight are based directly upon globules of the metal ranging from $\frac{1}{500}$ to $\frac{1}{100,000}$ of an inch in size, mixed with substances more or less inert. No. 1 usually numbers 100,000 globules and upwards to each grain of mercury in the mass; No. 2 is much more finely divided. No. 3 is badly divided, some of the globules being quite large, as the chalk does not prevent confluence, and hence it is an unreliable form for administration. No. 9 contains very minute globules, reduced by the oleic acid from the yellow oxide, with which it is incorporated. The metal constantly precipitates from this form until very few globules are suspended in the oil. The other mercurials vary more widely in the quantities of mercury they contain, but none of them convey mercury into the system in any other than the metallic condition.

No other metal is capable of comparison with mercury in its mechanical properties and physiological effects. It is the only metal fluid at common temperatures, it resists separation into smaller masses and tends to form larger globules when divided, unless held apart by some substance that will coat each particle separately. Each minute sphere will adapt itself to the shape of the tubular structure through which it may pass, and will, by

virtue of its superior gravitating power, being fourteen times heavier than water, cleanse the tissues through which it circulates. The myriad globules released in the stomach and intestines are absorbed by glandular structures, blood vessels and lymphatics, and act as "alteratives" precisely as we could imagine a foreign body, having its weight and peculiarities, would act when introduced into circulatory channels. The distances between the globules prevent the larger sized masses from forming, and even when lying compactly an albuminous coating will effectually prevent cohesion until such covering is broken. I kept for a month a mass of globules shaken up in albumen, and found, after having given a dose to a frog, that the globules maintained their form in the tissues of the animal, and that only a few had run together by rupture of the enveloping albumen in the stomach, this being easily recognized by the larger sized globules and the silvery luster of the metal which the coating had previously dimmed.

H. C. Wood, p. 367, quotes Stille, Eld, Buchner, Cantu, Jourda, Andouard, Fourcroy, Gmelin, Byanon, Mayencon, Bergeret, Saikowsky, Oesterlin and Heller as authorities for mercury having been found in every conceivable tissue and fluid of the body. Naunyn in Ziemssen's Cyclopedia, p. 615, says: "It has been proved by the reports of good observers that mercury exists relatively very often in the bones in accumulations readily discernable by the naked eye, even many years after mercurial treatment. The metal has also been occasionally found in biliary calculi, as I can certify from my own observations." P. 616 he continues: If an albuminate is formed, "it must be again decomposed, for mercury is sometimes eliminated in urine which does not contain albumen. Frequently, however, we find the urine albuminous when it contains mercury. Besides, with the urine mercury is eliminated with the saliva, bile, fæces, and perhaps sweat. This elimination of the metal in the form of the finest globules has been observed in the urine, fæces and bile after inunction." Taylor on Poisons, p. 389, records that "globules recovered from brain and liver averaged $\frac{1}{2,600}$ of an inch, kidney globules were larger." Under a lens magnifying 70 diameters I was enabled to see what I have every reason to

believe was mercury in the blood vessels and lymphatic channels of the living frog. I saw it in a few instances in the act of exuding through the skin. Mr. E. B. Stuart, the secretary of the Illinois Microscopical Society prepared a number of slides showing the mercury globules embedded in the various tissues of frogs after I had given these animals various mercurial preparations.

The mechanical action of the divided metal has been overlooked, evidentally because the metal undivided and in large quantities had no such capabilities. Catalysis and other meaningless terms have been used to account for its workings, and for forty years assiduous search, without result, has been made for the mysterious soluble salt it was supposed to form in the body. Therapeutists committed to the bichloride theory of Mailhe, the black oxide theory of Jeannel, the albuminate theory of Sée, or the deoxidizing and reoxidizing theory of Odling, have the burden of proof resting upon them. Each has striven and utterly failed to prove that a salt is compounded from the metal in the system, and had either succeeded, the mystery would have been no less. The puzzle would only have been rendered more insoluble, for the next step would be to explain how their hypothetical compounds acted.

As water enters the city reservoir and issues from the thousands of hydrants as water, he who claimed that, although water enters and flows from the pipes, it is changed into something else in those pipes before its exit, would be bound to demonstrate what that something was. Mercury enters the body and leaves it plainly as mercury, but it is not mercury that acts, it is something else, and when you ask what is that "something else" they cannot tell you, nor demonstrate any of their guesses. Cut open the water mains and all their ramifications, and water is still there. The bodies of mercurialized animals have been repeatedly opened, and mercury has still been found in the various organs en route toward excretion or dormant in tissues. But he who favors the mechanical theory is still asked to prove that the mercury is utterly unchanged and that none of it is reduced to another condition. It cannot be done, nor is it necessary that it should be done, for it would be a profitless and impossible task to recover, globule for globule, every atom of mercury from tissues

after medication. The greater part of the mercury is recoverable, as metal, and the weight of probability is in favor of the supposition that mercury acts as mercury, and as nothing else. It is, however, incumbent to prove how minute particles of mercury, granted as circulating in the body, can produce all their therapeutical and poisonous effects. Granting the entrance of these globules to the tubules, what would be the most probable consequence? Propelled through such parts a deobstruent action, the removal of less weighty accumulations would inevitably follow. The functions of vessels thus restored must be accelerated, absorption, resolution, secretory processes and often hypersecretion be induced by opening minute bodily passages previously non-operative from active or passive causes.

Salivation may be produced by accumulations of the metal in the terminals of the dental arteries, a condition favored by the bony covering of these arteries and their relationship with the carotids. The minute globules would find easier ingress to than egress from the dependent portion of the lower jaw bone, and accumulation in the cancellated tissue, gums and salivary glands would account for ptyalism. Mercurials load the circulation and emunctories with effete matter because of their deobstruent effects and ability to insinuate their particles among all tissues, separating the morbid and ulcerated portions from the healthy by the great and universal law of heavy bodies acting in the line of "least resistance." Wound healing is interfered with by these foreign bodies opposing plasticity.

In great or long continued doses the metal would gather in certain areas, and, by occlusion of channels, which small amounts would not affect or would pass through, all the ulcerative processes, neuralgias, epilepsies and general nervous derangements possible for clots or congestions to produce would be just as readily produced by mercury.

Jewelry worn next the person, during hydrargic treatment, becomes coated with mercury which has passed through the skin. The skin of a mercurialized person will show numberless globules of the metal with the aid of an ordinary magnifying glass. Warm climates and hot water baths assist the elimination of mercury and morbid material from the system.

Dr. Fessenden N. Otis, in the *Boston Medical and Surgical Journal*, February, 1880, demonstrates that syphilis causes obstruction of lymphatic vessels, by deposits of arrested normal material, and cites Bäumler, Wagner and Rindfleisch as virtually supporting this view. This seems to explain how a deobstruent mercurial acts in syphilis. The globules opposing stasis of any kind would prevent these accumulations, but where the deposits were passing beyond the influence of deobstruent remedies, as in secondary, a longer course of treatment would be requisite.

The lymph channels and liver seem to have selected the smaller globules, while the blood vessels and kidneys contained the larger sizes in every instance in my observations. Whether globules had been subdivided into these parts or not, I cannot say.

While the skin affords exit for the metal when taken internally, it certainly admits also of its absorption into the body by vaporization or inunctions. Doubtless much of the ointment and vapor used is not absorbed at all, but the fact that any is, shows that even after elimination some of the mercury may undergo re-absorption if suffered to remain on the cuticle. It is necessary to supplement other efforts at excretion of mercury with frequent hot water baths.

In the course of a day after taking a mercurial, much of the globular multitude may pass and repass a given point many hundred times, some that has passed out passing back again until, finally, all is excreted or carried into bony or other tissues remote from active circulatory influences.

In a gram (15 grs.) of pilulæ hydragyri there is one-third of a gram (5 grs.) of pure mercury, which would cubically measure one-fortieth of a cubic centimeter. Taking .01 millimeter (Kölliker) as the average diameter of the capillaries, and remembering that when the metal is pharmaceutically mixed with confection of roses and liquorice root, it is visually "extinguished" but is microscopically existent as mercury globules, at capillary sizes .025 c. c. ($\frac{1}{3}$ gr.) of mercury would be divided into twenty-five million globules, which would be enough to engage the attention of the gastric tubules pretty generally, particularly as alternate ingress and egress may be given by single glands or groups of glands, vermic-

ular motions passing the globules onward through the canal to the absorbents.

Where hydragyria had been induced, let us assume that in three months mercurializing, at the rate of a gram (15 grs.) per day (which in quicksilver works can be considered a very moderate figure), and allowing one-half of this to have been excreted, there would remain forty-five grams (1½ oz.) of mercury lurking in the blood-vessels, bones, viscera, muscles, etc., capable of division into thirty-three hundred and seventy-five million particles, while he would have been subjected to the inhalation and absorption of twice this number altogether. Distributing these about the body by probabilities, we could have, say, three hundred million concerned in producing ptyalism through the parotid, submaxillary and sublingual glands and branches of the internal maxillary artery, with a portion (say a million) bearing directly upon the cerebro-spinal centers through the carotid and basilar arteries. The condensation of any thousand of these globules in certain areas would be more than sufficient to produce deleterious nervous effects from paresis to paralysis.

Naunyn, p. 618, says that living flowers serve as the most delicate reagents for detecting such dangerous impurities in the atmosphere; they die very quickly in an atmosphere containing mercury. A gold leaf becomes quickly covered in such an atmosphere, and a stick of wood, painted with flowers of sulphur, becomes brown on the surface, owing to formation of sulphide of mercury." It is not possible for a plant to live with its cellular spaces, through which pass nutrient fluids and gases, clogged up with multitudinous particles of metal, and this is the condition of the poisoned plant under microscopical examination. Parasites, with small tubular structures such as respiratory tracheæ are actually suffocated by these bullets lodging in those passages. "Ruminants are easily killed by mercury ointment; their lungs are congested and head drops to the ground." Taylor, p. 353. All quadrupeds whose heads are on the same level or most frequently below the level of the spinal column, would be most liable to have mercury accumulations in the vessels of the brain and cranium generally.

MERCUROUS OR BLACK OXIDE GROUP.

| | Chemical Formulæ. | Combining Weights. | | | Doses decomposing into 2 parts of mercury, finely divided. |
|---|---|---|---|---|---|
| | | Base. | Radical. | Total. | Parts. |
| 1. Hg. oxidum nigrum..... | $Hg_2O$ | 400 | 16 | 416 | 2.08 |
| 2. Hg. chloridum mite ..... | Hg Cl | 200 | 35.5 | 235.5 | 2.35 |
| 3. Hg. iodidum viride..... | Hg I | 200 | 127 | 327 | 3.27 |
| 4. Hg. bromidum .... ..... | Hg Br | 200 | 80 | 280 | 2.80 |

Black oxide of mercury, at the head of this list, is the base of all mercurous compounds, and when decomposed they pass to the metallic state through reforming the black oxide, which is so unstable as to readily yield its oxygen to deoxidizing agents.

When these mercurous salts, in ordinary doses, encounter the pancreatic alkali, they are instantly converted into black oxide, which, in the intestinal glucose and heat is reduced to metallic globules varying little in sizes from those released by blue mass. For this reason the mercurous salts resemble the simple mercurials, within certain limits. When these salts are finally pulverized the globules formed in the system are much smaller, and hence more active. Small doses well triturated, taken at intervals, will produce better general effects because the metal then is more widely distributed through the body and in a finer divided state. Generally speaking, all these mercurous compounds act alike, and may be given in the same doses, the small differences being fully accounted for by the differences of atomic weight of their radicals. Thus the black oxide (p. 1257, U. S. Dispensatory) has been given in place of calomel in the same doses, and found to have identical effects. The green iodide contains $3\frac{1}{2}$ times as much iodine united to the same amount of mercury as there is chlorine in calomel, because chlorine weighs 35.5 and iodine 127.

Ten grains of calomel would yield $8\frac{1}{2}$ grains of mercury and $1\frac{1}{2}$ grains of chlorine, while the same amount of green iodide would afford only 6 grains of mercury and nearly 4 grains of io ine, which fact alone explains why the iodide may not be used

as freely as the chloride. The greatest danger attending the use of the green iodide is its instability and tendency to form the poisonous biniodide in liberating half its metal; thus 10 grains of green iodide can decompose into 3 grains of mercury and 7 grains of red iodide, which is anything but desirable. Practically, though, I think this liability is overestimated, and the chances are that the biniodide had been formed before ingestion wherever such accidents have occurred. In pill form the green iodide would in the pancreatic fluid act as calomel in forming black oxide, only equivalent weights would differ in the proportions of radical and base, as before mentioned. The bromide more closely resembles calomel in its effects, and the proportions are more nearly alike, the atomic weight of bromine being 80, while that of chlorine is 35.5; iodine being 127. Ten grains of bromide of mercury would break up into 7 grains of base and 3 of bromine. Calomel will always hold its position at the head of mercurous salts because it contains the largest percentage of base, and it is the *mercury* in these salts that constitutes the medicine and not the elements combined with it. Were it not for its instability the black oxide would be superior to calomel. Calomel is used in preparing pilulæ antimonii compositæ and pilulæ catharticæ compositæ. The lotio hydrargyri nigra is black oxide precipitated from calomel by lime water.

*The Chicago Pharmacist and Chemist*, November, 1879, quotes an article from *Pharm. Zeitg.*, Vol. XXIV, No. 68, which concludes as follows: "These experiments (of Verne, in *Reportoire de Pharmacie*, June, 1879), conclusively prove that no poisonous compounds are generated from calomel in combination with such bodies as salt, sugar, citric acid, etc.; and, whenever such mixtures have been followed by alarming symptoms, the calomel must have been an impure article. The proto-chloride of mercury is really a more stable compound than ordinarily considered, and it would appear that the bi-chloride is more easily converted into the proto combination than *vice versa*. In Wurtz' Dictionnaire de Chimie, we find the following statement: "Bichloride of mercury is easily reduced to the mono-chloride or even to the metallic state by many agents. Light will precipitate calomel from an aqueous solution," and further we read: "Many

organic substances will reduce bi-chloride of mercury to calomel or even to quicksilver, especially under the influence of light." In the face of these facts it can hardly be logically maintained, that calomel shows a tendency to assume a higher state of oxidation. It also appears absurd to prohibit the consumption of acidulous food while administering calomel, the more so when we consider the presence of free hydro-chloric acid in the stomach, and remember that the latter re-acts with calomel only at a boiling temperature."

MERCURIC OR YELLOW OXIDE GROUP.

| | Chemical Formulæ. | Molecular Weights. | | | Doses decomposing into 2 parts of mercury, extremely divided. |
|---|---|---|---|---|---|
| | | Base. | Radical. | Total. | Parts. |
| 1. Hg. oxidum flavum..... | Hg O | 200 | 16 | 216 | 2.16 |
| 2. Hg. chloridum corrosivum. | Hg $Cl_2$ | 200 | 71 | 271 | 2.71 |
| 3. Hg. iodidum rubrum..... | Hg $I_2$ | 200 | 254 | 454 | 4.54 |
| 4. Hg. cyanidum..... | Hg Cy | 200 | 52 | 252 | 2.54 |
| 5. Hg. bibromidum..... | Hg $Br_2$ | 200 | 160 | 360 | 3.60 |

All the salts in this group are based upon, and decompose into, the yellow oxide heading the list. Alkalies precipitate from their solutions a very dense amorphous yellow oxide powder, which, when properly separated, breaks up into extremely minute globules in light, heat or deoxidizing agents, as sugar, etc. These globules are, as a rule, incomparably smaller and more numerous than those obtained from the mercurous compounds. As near as could be estimated micrometrically, they number one hundred million to six hundred million globules to the grain, inversely according to the concentration of the solution. A dose of one-tenth of a grain of the bichloride of mercury will contain, when precipitated by intestinal fluids, ten to sixty million of globules. It is in the power of any one to verify this rather startling assertion. By spreading the solution over a square decimeter of surface, and precipitating with caustic potash solution, this area will reveal, under the microscope, if care has been used in distributing the fluid equally, a yellow amorphous powder. A solution

of glucose, allowed to remain on the slide at the temperature of the body, or exposed to sunlight, will cause these oxide particles to break into black points, which, under high powers, become apparent as mercury globules in the numbers mentioned. The black powder, precipitated by stannous chloride from a soluble salt of mercury, will also be found to be very much more finely divided mercury than is afforded by reduced mercurous salts. If these particles are allowed to come in contact with each other, larger globules form. Blue mass yields many of these particles quite as minute but in minimum quantity. The mercuric salts form the maximum number of the minute particles, with a few large-sized globules accidentally formed. The red iodide has the disproportionate comparative quantity of radical and base as existed in the green iodide, and for the same reason. In these salts the radical is double the weight of corresponding mercurous salts. One quarter of a grain of the bichloride will nearly equal half a grain of red iodide when the same amount of mercury is desired (the exact figures are in the table, .271 Hg $Cl_2$=.454 Hg $I_2$). This proportion is exactly what is obtained, weight for weight, in giving bichloride of mercury in potassium iodide solution. One tenth of a grain of the bichloride will contain $\frac{74}{1000}$ grain of mercury and $\frac{26}{1000}$ grain of chlorine. The same weight of biniodide of mercury contains $\frac{44}{1000}$ grain of mercury and $\frac{66}{1000}$ grain of iodine, the bichloride having .3 more mercury and .3 less radical by weight than the red iodide. There is much less difference between the cyanide and bibromide, and corrosive sublimate, in this respect, the weights being respectively 52, 60 and 71. Tabulating all the mercuric compounds, the proportions of base and radical in one-tenth grain doses stands thus:

| | Base. | Radical. | Mercury combined with. |
|---|---|---|---|
| Yellow Oxide, | .0926 | .0074 | Oxygen. |
| Corrosive Sublimate, | .0738 | .0262 | Chlorine. |
| Red Iodide, | .0440 | .0560 | Iodine. |
| Cyanide, | .0794 | .0206 | Cyanogen. |
| Bibromide, | .0555 | .0445 | Bromine. |

Although the cyanide under less weight contains the same mercury weight as corrosive sublimate the latter will continue in favor because it is the better, safer and more eligible preparation.

The cyanide, by liberating its sedative radical in the stomach, prevents the epigastric pains accompanying disintegration of the bichloride. It matters nothing whether the cyanide is converted into bichloride in the stomach by the hydrochloric acid there, or whether it passes the pylorus as cyanide, both drugs precipitate the identical yellow oxide in the pancreatic fluid and all the mercuric salts undergo the same process of reduction to metal. All the mercuric salts named are soluble; the red iodide in potassium iodide solution, the bibromide in ether, the others in water. They are given in the same doses and in the pancreatic alkali release yellow oxide of mercury which undergoes further reduction to minute mercury globules in the intestines, blood and liver. Their physiological effects and poisonous properties are alike, they are based upon the same oxide and are reduced by similar means to the same condition. They contain exactly double the number of radical atoms as the calomel or black oxide mercurous group.

The yellow oxide ointment and lotion are of course prepared from this mercuric oxide. Ammoniated mercury is essentially the bichloride rendered insoluble by ammonia but retaining otherwise all the properties of the bichloride; there is an ointment made from this preparation, but this drug could be easily spared from the pharmacopœia. An ointment is made with the biniodide. Donovan's solution, the liquor arsenici et hydrargyri iodidi, is what its name indicates. This comprises all the mercuric compounds used in medicine.

### SULPHUR AND NITROGEN COMPOUNDS.

| | | |
|---|---|---|
| 1 Hg. Sulphuretum Rubrum, | Hg S, | Cinnabar. |
| 2 Hg. Sulphas, | Hg $SO_4$, | Sulphate. |
| 3 Hg. Sulphas Flava, | Hg O + Hg $SO_4$, | Turpeth mineral. |
| 4 Hg. Nitras, | Hg 2 $NO_3$, | Nitrate. |
| 5 Hg. Oxidum Rubrum | | Red Oxide. |

The first is insoluble and inert, when pure, and hence unfit for internal administration. When used by fumigation it liberates sulphurous acid and vapor of mercury. The second is officinal for the preparation of calomel and corrosive sublimate and is not used in medicine. The third has the poisonous properties

of the mercuric yellow oxide and like other sulphates, is an emetic. It contains both the yellow oxide and sulphate.

The fourth is used to prepare the liquor and unguentum hydrargyri nitratis, the escharotic and stimulant properties of which pertain to the nitric acid with which the mercury is combined.

The fifth is the base of a stimulant ointment, and has always been considered an allotropic form of the yellow oxide, but as far as my unfinished investigations extend I have been led to believe it to be a nitrate. The British Pharmacopœia names it nitrico-oxidum and the United States Dispensatory acknowledges that complete purification from the nitric acid with which it is made cannot be accomplished without endangering the compound. In every instance where the yellow oxide is formed, nitrogen, in a form capable of combination, has been excluded. In every process for obtaining the red crystals nitrogen has been carefully included. When the red oxide is thoroughly separated from the nitric acid used in the pharmaceutical preparation it becomes yellow oxide. The differences between the two forms may be presented thus:

| YELLOW OXIDE. | RED OXIDE. |
|---|---|
| Prepared by precipitating mercuric solutions with K H O. Forms yellow amorphous powder. When prepared in any way nitrogen capable of combining is excluded. | Prepared by heating nitrate of mercury till red fumes cease. Forms red crystals. When otherwise prepared, as in air, forms with difficulty, owing to nitrogen not readily combining, but nitrogen never excluded. |
| Has been proven to be an oxide. | Has not been proven to be an oxide nor found apart from nitrogen, and responds to tests for subnitrate. |
| Mercury forms only two oxides, the black and yellow. | Mercury forms more nitrates than any other metal, and unknown nitrates exist. |
| Combines readily. | Combines with difficulty. |
| Forms mercuric oxalate; with cold solution oxalic acid. | Does not form oxalate. |
| Readily forms oxychloride with Hg $Cl_2$. solution. | This change very slow with this form. |
| Boiled with potassic dichromate yields basic mercuric chromate. Hg Cr. $O_4$, 2 Hg O. | Similarly treated forms basic salt with larger proportion of base Hg. Cr. $O_4$, 3 Hg. O. (Millon.) |
| Does not blacken on heating. | Blackens on heating (assuming the color of mercurous oxide). |

| | |
|---|---|
| Nitrogen in some form is required to convert it into red oxide. | Neutralizing its acid solutions precipitates the yellow oxide, thus abstracting nitrogen. |
| Physiological action milder and not escharotic. | Physiological action harsher, irri tating and escharotic. |

I have not been able, as yet, to fully demonstrate that the red oxide is a nitrate, but as the evidence thus far is against its being a pure oxide, and in favor of its being a nitrate, it is placed provisionally in the last list as anomalous. I hope soon to succeed in obtaining a satisfactory conclusion one way or the other. Allotropy is a miserable mystery that needs more thorough investigation than has been given it.

### TOXICOLOGY OF MERCURY.

In examining tissues to discover whether poisonous doses of mercury had or had not been introduced into the body during life, no one can conscientiously assert, from any chemical testing, the form in which mercury has been taken by the person whose body is being examined, unless most extraordinary doses have been used. We have many excellent tests for mercury, such as the electrolytic and formation of soluble salts by reagents which destroy the tissues; but the physiological conditions of the primæ viæ will always afford the most reliable evidence. The ether test of Orfila is, perhaps, one of the best methods of determination, but often this, as Mailhe claims, may be interfered with by the presence of certain chlorides. He says the mercuric oxide interferes with the test. This, I believe, is not because mercuric oxide exists in the fluid tested, but because the alkaline condition which has previously formed the mercuric oxide, also prevents the ether from holding the salt in solution. The true difficulty lies in our ignorance of the forms in which it is possible for mercury to exist in the body, and of the capabilities of ante or post-mortem compounds to create a different form of the drug than the one taken. So long as we do not know precisely what forms mercuric salts may assume in the fluids of the body before or after death, we will have no right to assert, upon chemical grounds alone, the form in which mercury has been taken. I think we have reasons for believing that all of the therapeutical doses of mercury, and even small poisonous doses, are completely

reduced to the metallic state by the animal fluids. Taylor on Poisons, Wormley on the Micro-Chemistry of Poisons, and Naunyn in Ziemssen's Cyclopædia mention the petechial spots and injected appearances of the intestines after corrosive sublimate poisoning, but do not say whether the "deep yellow tint and beautiful arborescent red material in the inner coat of the mucous membranes" is blood, bile, or the red and yellow oxides of mercury. The probability of its having been an oxide increases in considering the case mentioned by Wormley, p. 326, where the stomach "contained a small quantity of bright yellow fluid, having the consistency of thin gruel, and its curvatures presented patches of dotted injection of a bright crimson tint, and the mucous membrane was a little softened in the neighborhood of the most vivid red patches." The small intestines were thus injected while the large intestine was healthy. It is well known that corrosive sublimate is precipitated by organic substances fibrin, casein and mucous membrane. Taylor, p. 303, notes that after a case of red precipitate poisoning, that substance was found imbedded in the mucous membrane of the stomach and intestines. The symptoms of poisoning by the red oxide are very much like those of corrosive sublimate. In the last case that Taylor mentions, the red precipitate would naturally be sought for in the tissues, but in the other cases presenting similar appearances, it did not occur to them to test for the yellow or red oxide. In the stomach and intestines of a hen, which I poisoned with four grains of corrosive sublimate in two per cent. solution, I found the yellow oxide of mercury and blood vessels of the submucous tissue injected with bright red blood. The liver, under microscopic examination, showed plainly multitudes of characteristic mercuric globules of the metal, but from an ethereal solution of part of the liver substance I obtained, by precipitation, evidence that an extraordinary dose, such as I gave, can so saturate the animal fluids as to prevent further reduction. I applied two drops of the same solution of corrosive sublimate to the foot of a frog, and found a slight shrinkage of the web only to be apparent. By pouring a strong alkali on this foot, and washing it off with a stream of cold water, some of the lymphatic lacunæ appeared injected with a yellow substance. The other foot,

which had been carefully kept out of the way of the operation, I then examined with the microscope, and found threads and patches of silvery white substance in incident rays in the course of the lymphatics. This appearance did not exist previously. The poison seemed to have overwhelmed the circulation of the foot and leg upon which it was placed and to have been conveyed unreduced into the general system. In six hours the poisoned leg was greatly inflamed, and in twenty hours the frog died. The poison must have reached the intestines, judging from their inflamed condition, and a very superficial examination of the liver enabled me to count 700 minute globules of what I felt justified in believing was mercury. "Frerichs on the Liver" records that its author has found gall stones containing mercury globules, which would, in connection with other evidences, indicate that hepatic products were opposed to allowing the presence of an unreduced form of the mercury salts. The kidneys, after large toxic doses are found engorged and the urine suppressed. I found that fresh urine instantly precipitates white crystals and yellow powder, and in looking up references, found the following:

"Mercuric chloride forms with a solution of urea a white precipitate 2 C O $H_4$ $N_2$ 3 Hg O, which turns yellow in boiling water. On adding Hg O to a warm solution of urea the compound C O $H_4$ $N_2$, Hg O appears to be produced." (Watt's Chemistry, Vol. V, p. 953.) "Urea does not precipitate any metallic oxide from its acid solution, but when added together with an alkali, a compound of the metallic oxide with urea is often precipitated. (Prout comp. Werther, also Liebig, p. 374, quoted by Gmelin, Vol. XII., p. 375.) "Mercuric nitrate and urea precipitates $C_2$ $H_4$ $N_2$ $O_2$, 4 Hg O, N $O_5$ as white insoluble powder. (Gmelin Vol. VII., p. 374.)

"Urea with protochloride of Hg. cannot be obtained in its crystalline form from the aqueous solution, but separates in that form from a solution of the two substances in boiling absolute alcohol." (Ibid.) "Mercuric nitrate added to solution of urea with potash gives a white precipitate C O $H_4$ $N_2$, 2 Hg O. (Watts, Vol. V. p. 953.)

"Liebig says when mercuric nitrate is added to solution of

urea a white insoluble precipitate falls with composition 2 C O $(N H_2)_2$ + 3 Hg O + Hg $(N O_3)_2$." (Roscoe and Schorelemmer, Vol. 1.)

This is enough to convince us that a soluble form of mercury cannot exist in urine as normally constituted with an abundance of urea, and that whether glucose is or is not present it can exert but minor influence in reducing the mercuric salts. As the microscopic appearances presented by repeated experiments, showed two compounds, instead of one, in the mercuric precipitate of urine, one of which seemed to be identical with the amorphous yellow oxide, the passages given above would be insufficient were it not for Watts (Vol. V., p. 954), who after detailing Liebig's formulæ for precipitates given by Hg $Cl_2$ and mercuric nitrate with urea, each ending with two to four atoms of Hg O, says the composition of these compounds is not yet definitely fixed. "It is not known indeed whether they contain mercuric oxide and nitrate of urea, or urea combined with mercuric nitrate and mercuric oxide."

This with the microscopic appearances, until the contrary is proven, will justify belief in the separate existence of the yellow oxide and a carbamidic product precipitated from soluble salts of mercury in urine. The filtrate throwing down no precipitate with caustic potash and the great quantity of the original precipitate from a drop of the mercuric solution shows that all the mercuric salt is decomposed.

An excessive dose reaching the kidneys unreduced would encounter urea enough to decompose more of the poison, the precipitate would thus occlude the uriniferous tubules and account for the congestion. In some cases noted by toxicologists, mercuric chloride must have reached the bladder for that viscus has been found, after poisoning, shrunken and disintegrated. The destructibility of this form of mercury does not depend alone upon its solubility, but chiefly upon the fact that its solutions decompose and liberate its caustic chlorine and countless, minute, but nevertheless heavy, particles among tissues it may rend apart, and vital avenues it may close.

## ARTICLE II.

### BLOOD-LETTING IN THE TREATMENT OF PNEUMONIA. By T. F. WORRELL, M.D., of Bloomington, Ills.

The following paper on blood-letting was read by Dr. Worrell before the McLean County Medical Society:

*Gentlemen of the McLean County Medical Society:*

You asked me at your last meeting to submit to you at this time the views I entertain with regard to the agency of venesection in the control of pneumonia.

The first remark I have to make is that when I said I could demonstrate the potency of blood-letting to arrest that disease, I had reference only to the acute form of it, uncomplicated by any condition contraindicating antiphlogistics, only the sthenic variety, if we may so designate it.

I do not propose to introduce any authors for the purpose of showing that pneumonia is properly treated by bleeding, for this would not be germane to the inquiry. The specific subject assigned me requires me to show that the disease under consideration is treated *rationally*, when it is treated antiphlogistically, especially when it is treated by *venesection*.

I shall not enter upon the discussion of the question, "Are Congestion and Inflammation Different Entities?" but shall assume that the first stage of inflammation is congestion, which signifies an undue accumulation of blood in a part, that interferes with the onward movement of the sanguineous fluid. This stage of inflammation, which Andral calls hyperæmia, is marked by (of course I am considering active congestion) such inordinate activity of the part—of the lung in pneumonia—and by such exalted temperature as to induce not only functional disturbance, but also, if not arrested, serious deposits, especially of serous and plastic matter. In *all* cases of acute pneumonia, active congestion is a necessary antecedent of that morbid condition which gives rise to the effusions which render this disease one of so grave character. Without these deposits, pneumonia would be

regarded as one of the mildest forms of disease. On account of the liability to their occurrence, it is classed among the gravest diseases in the great catalogue of human maladies. This is explicable upon the ground that during the period of simple engorgement, or congestion, the capillaries are easily emptied; and, getting rid of their redundant contents, readily assume their normal caliber, and so all the morbid and often fatal consequences which result from *established* inflammation are easily averted.

Having shown what I suppose none of you will deny, that pneumonia in its forming stage is attended by an increased amount of blood in the part which involves all the tissues that compose the pulmonary parenchyma, *i. e.*, the air cells, the minute tubes, the intervening cellular tissue, and the vascular ramifications, I will state, as the next condition, that the fibrin of the blood is in great excess, and that this excess of fibrin is accompanied by a corresponding excess of albumen or coagulable lymph; that these two substances unite to form that yellowish substance which we call the buffy coat, and that this composite substance indicates not only the intensity of the pulmonary lesion, but also the extent of it as well.

This buffy coat is not confined to those who are suffering from inflammation; it also abounds with those who are plethoric and with pregnant women; all from the same source, a predominance of fibrin in the blood. Andral says that "in nearly all cases of acute inflammation there is an excess of fibrin, and the lymph globules of the blood." That, from three parts in a thousand, which is the normal proportion it often rises to six and even ten parts in pneumonia and rheumatism. This great pathologist further says that the appearance of the buffy coat in pneumonia is dependent on this excess of fibrin, and that it materially affects both the duration and products of the local disease. [In this place allow me to digress so far as to say that there is no authority for the presence of this buffy coat (the evidence of such inflammation) in those diseases that are infections.]

Another position I assume is that in the incipiency of this disease there is always a *focus* from which the irritation radiates, that is that it is at first *local* and afterwards spreads out into a larger field, limited often by the confines of the organ which it

assails. This original point of irritation serves to invite the blood to it and its neighborhood, which has the effect not only to intensify the fire already started but to extend its glow to the adjacent parts and thus, very soon, there is fuel enough for a general conflagration. The old aphorism, "Ubi irritatio ibi affluxus humorum," is as true to-day as it was when it was first uttered, the woeful defection from its indication of treatment to the contrary notwithstanding.

We now come to inquire what is the most urgent indication in the *treatment* of pneumonia, and *how* may that indication be most surely and promptly fulfilled?

I answer that the paramount indication is to relieve as quickly as possible the engorged vessels, and thus prevent the occurrence of those effusions which always render the disease a grave one.

As I would not throw combustibles into a fire, if I wished to extinguish it, so I would arrest that tendency to a rush of the fuel which fans and re-supplies the flames of inflammation towards the point at which it started, and thus expect to smother it before its flames have consumed the citadel of life. The blood, and that charged with an inordinate amount of the elements which promote inflammation, should not be permitted to circulate so rapidly and in such augmented quantity in the parts diseased. And this brings me to answer the second part of the query already propounded, viz., How may this indication be fulfilled? I answer that the most prompt, the most rational and the most certain way in which to accomplish it, is by reducing the inflammable material as fast as possible. The abstraction of blood directly from the general current is the only rational mode of arresting the flame already spreading, thus withdrawing those elements upon whose free supply pneumonia must depend—if I may so speak—for its progress towards that stage of it in which the deprivation of blood could be of no service, but which tend to curtail those resources upon which the patient might be compelled to rely, while he was waiting for those changes to take place, now rendered unavoidable by the establishment of that condition of the breathing organ which venesection could not possibly rectify.

I need not remind you, gentlemen, that all authors from the dawn of medicine down to a recent period, have advocated deple-

tion by the lancet as the most prompt and reliable expedient for arresting pneumonia in its acute stage.

They have all insisted that this is demanded not for its direct effect arresting inflammation, but also for lessening the labor of the lungs and thus giving rest for the suffering organ, as far as it is possible to do that. They argue that as all the blood in the body must pass through the lungs, after reaching the heart, before it can be again distributed, and, as in pneumonia, a large portion of the lungs is incapable of performing its functions perfectly, an increased burden falls upon the healthy portion, and thus not only is the same part unduly loaded with blood, but the movements of respiration are necessarily accelerated. Against this old theory of pneumonia, as to its pathology and treatment, is arrayed the new doctrine that it is an infectious disease, that the local symptoms are but expressions of this infection which has tainted the whole body, and that, therefore, the patient should be sustained "ab initio" by such regimen and medicines as tend to overpower the infection and fortify the system against its ravages.

I believe that no standard work of American authorship has espoused this new theory; but it is adopted by some German and English pathologists. Before summing up what I have to say in the argument for venesection, I will briefly consider some objections to this modern idea.

And first, it places pneumonia in that class of diseases which are self-limited. There are but two distinct classes of infectious diseases, viz: those which are self-limited, and those which do not terminate spontaneously. To the first class, the disease under consideration must belong, if to either. Now, the general conviction is, that infectious diseases of this class are terminated by elimination of materies morbi which produces them, or its destruction by catalysis. Of this class typhoid fever may be regarded as the type. I think I may safely assume that there is no physician who comprehends the pathology of typhoid fever, who will say that it may be aborted or arrested in a time too short for elimination of the infectious matter. This is just as true of all other diseases of this character. They all have a definite course, and the limit of their duration depends upon the time required for their development, and for the destruction or elimination of that toxemic agent which induces them.

Now the proof that pneumonia does not belong to this infectious class of diseases, is to be found in the fact, first that there is no fixed period for its continuance, its duration being dependent not upon the occupation of the blood by a poison which it requires a certain number of days to remove, but that it may be easily arrested in its first stages, the inflammation terminating in complete resolution, and all in a few days; and, secondly, that the products of the morbid condition of the lung, which we call pneumonia, are like those which result from inflammation existing in any part of the body, without any reference to the cause of that inflammation. Much more might be written on this subject, but I have already written enough. I will conclude this paper by reference to some reflections on the subject of it by Dr. Henry Hartshorne, of the University of Pennsylvania. He says that venesection is one of the oldest, and has been one of the most universal remedies for inflammation. Although blood-fearers have appeared now and then in all ages and nations, yet the aggregate testimony of the profession from Hypocrates down to the present time, has been in favor of blood-letting in the treatment of inflammations and congestions. In these later years it is true that bleeding has more opponents and fewer advocates than at any previous period in medical history. Why is this true?

*First.* Because of reaction from the great abuse of the lancet.

*Second.* A radical change in the type of almost all diseases, by which they have become asthenic.

*Third.* False construction of recent science, which according to Virchow and others, makes no difference between morbid lesions whatever may be their cause; and that stimulation, irritation, and inflammation are essentially and practically, as well as *causatively*, different degrees of the same vital impression.

*Fourth.* Leadership and fashion.

By the abstraction of blood in pneumonia we lessen—

1. The plethora of the vessels.
2. The number of red corpuscles.
3. The force of the heart's impulse.
4. The excitement of nervous system.

By all these influences venesection has the effect to diminish

the vascular excitement which belongs to inflammation and thus diminish the liability to destructive disintegration. If this is true then the assumption of Prof. Bennet and others of his class, that inflammation is a self-limited process, which cannot be cut short, is certainly erroneous. What, in the last place, is the modus operandi of blood letting? I answer, it restores the equilibrium of the circulation; it reduces disproportionate vascular congestion; it restores the *balance* of the circulation. It absolutely relieves the organ inflamed of *that* which is an essential factor in inflammation, a sine qua non to its existence, *i. e.* an inordinate amount of blood, charged with an excess of those very elements which are so greatly concerned in the production of those consequences which alone make pneumonia a perilous disease.

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## ARTICLE III.

### ALCOHOLISM AS A DISEASE. By S. F. BENNETT, M.D.

Dr. C. W. Earle's article on "The Cinchona Cure for Intemperance," published in the February number of THE JOURNAL AND EXAMINER, excites my surprise in this—that any one having experience in the use of the drug cinchona rubra, should pronounce its effects nil in the treatment of alcoholism. Of the "cinchona cure" dispensed by the specialist Dr. Earle mentions, I have nothing to say, but I am impressed with the belief that the analogies between that class of diseases in which cinchona is so near a specific, and alcoholism are so remarkable as to make it probable that the same remedy should prove efficacious in both.

For a long time my attention has been called to the curious, and sometimes startling, analogies in the phenomena of alcoholism and so-called "malarial affections." Both have a special causation, the first alcohol, the second a morbific agent commonly known as malaria. The causative relation of alcohol to drunkenness, none will dispute, and it is not germane to discuss here the arguments in favor of the existence of a special morbific agent as the cause of intermittent, remittent and pernicious fevers since it is with the phenomena only of these diseases, and alcoholism, that I propose to deal.

The most singular characteristic of the simplest form of malarial disease, intermittent fever, is periodicity. We have a cold stage, a stage of pyrexia and a sweating stage with intermissions of remarkably equal length, during which the system returns to an apparently, almost, normal condition. Each variety of the type observes its own law of periodicity, be it quotidian, tertian or quartan—a pathological mystery yet unsolved. Exposure to the morbific influence for a certain time, varying with different subjects, is necessary to the development of the disease. The period of incubation may be a few days only, or a few weeks, or it may be many months. Analogously, we find that a large proportion of drinkers are *periodical* drunkards. The intermission between paroxysms of debauch may not be as uniform in a given case as in those of intermittent fever, but they are uniform enough to plainly stamp them as "periodic." The more common drunkard is not he who drinks every day, but he who has a "spree" once in just about so long. And as a variable time, in different subjects, is required for the specific materies morbi to produce intermittent fever, so indulgence in drink varies in the time necessary to establish the alcoholic habit. In both classes of patients we find an approach in the system to a normal standard, but in both the disease is only temporarily quiescent. In intermittent fever auxiliary causes, as exposure to cold, over-exertion or excesses in eating or drinking are sometimes necessary to give efficiency to the special cause of disease, and in alcoholism the same causes may bring on the slumbering desire for drink. How often is a "bad cold," "a headache" or "fatigue" pleaded as the incentive to a debauch.

There is a second class of drinkers in whom the disease has assumed a more continued type, with remissions instead of intermissions; that is, the patient is impelled to drink more or less every day, with occasional periods of excessive debauch. We have in remittent fever the analogue of this type of alcoholism. Intermittent and remittent fevers are mutually convertible into each other, both are due to the same specific cause, and both succumb to the same specific remedies. In remittent, on the advent of the febrile stage, the movement continues for a variable length of time, from six to forty-eight hours, and then notably subsides;

the skin becomes moist, the frequency of the pulse is reduced, but the fever does not entirely disappear; there is not complete apyrexia; there is a remission, but not an intermission. Sometimes the remission is marked, sometimes it is slight. After a time the febrile movement is renewed with as much or more intensity as at first. Nausea and vomiting are prominent symptoms. The matters vomited are yellowish or greenish in color, there is distress of the stomach and epigastric tenderness. The functions of the mind are often notably disturbed. Jaundice occurs in a certain proportion of cases. What a remarkable resemblance do we here find to that type of alcoholism seen in the steady drinker! As with the victim of remittent, no intermission occurs in which the physical system is free from the power of the disease, so with the steady drinker, no intermission gives relief to the disease-permeated body or beclouded intellect. To-day his perverted appetite calls for somewhat less of the customary poison, but to-morrow it demands more to make up the temporary loss. To make the analogy more complete and more surprising, distress of the stomach and epigastric tenderness are present, nausea and vomiting common, and jaundice not infrequent.

A graver type of malarial affections is pernicious fever, due to the same specific agent, but characterized by phenomena more remarkable and much more apt to end in death, than those of the milder types. It is, indeed, one of the most formidable affections with which the physician is called to deal. In some cases profound coma may be present; in others active delirium of a violent and dangerous character. The essential morbid conditions are the same as in the milder types but intensified and exaggerated. The materies morbi of the disease makes a most profound and alarming impression upon the powers of life. It is the last and most virulent exhibition of the malarial poison. Its onset may be similar to that of chills and fever, or remittent; in two or three days the skin becomes livid, shrunken and sometimes clammy, countenance anxious, thirst intense, stomach excessively irritable, mucous vomitings, pulse small, weak and rapid, restlessness marked, or in some cases, drowsiness and hesitation of speech; and coma or tetanic spasms may supervene.

If death do not take place in the collapse, partial or complete reaction follows in a few hours, but the next day at about the same hour another paroxysm occurs, more dangerous than the first, and if a third be allowed, it is generally fatal. In that condition known as delirium tremens we have the analogue of pernicious fever. The two conditions have many symptoms in common. The access of delirium tremens is marked by insomnia, anorexia, depression of spirits, and muscular tremor, notably of the tongue. In two or three days mental aberration of a peculiar character supervenes and remarkable restlessness. Illusions crowd the distempered brain. If a favorable termination happen, sleep at length ensues, out of which the patient awakens free from delirium. If the affection pursue an unfavorable course, the insomnia persists with great prostration, delirium continues, the body is bathed in perspiration, the pulse becomes more weak and frequent, and coma generally ends the scene.

Now, aside from those theoretical reasons for confidence in cinchona for the cure of alcoholism educed from the above analogies, I have undeniable and positive proofs of the cure of drunkenness by this agent. I have as much confidence in it as I have in the sulphate of quinia in intermittents. I do not judge by hearsay, but by actual experiment and observation. I know of radical, and, so far, lasting cures of confirmed drunkards. The effect of the medicine is not to create a disgust for alcohol, but a total indifference. If a patient will voluntarily recommence the use of alcoholics, his disease returns, just as the patient cured of intermittent will again contract that disease if again exposed to malarial poison. There are plenty of inebriates of naturally low and brutal instincts who will drink for the effects of it, whether they have a drunkard's craving for it or not. Is it not of this class that the "relapses" are made up? Have not the failures been due to inefficient administration of the medicine? My experience with the "cure" has been so entirely different from that of Dr. Earle that I would like to have physicians generally test the matter and report through the JOURNAL AND EXAMINER.

RICHMOND, ILL., February 25, 1880.

## Article IV.

### The Audiphone and Kindred Instruments. By E. L. Holmes, M.D., of Chicago. (Read before the Medical Society of West Chicago.)

Any improvement in the application of a well-known principle, which tends to mitigate human suffering or ameliorate any infirmity must be a subject of interest to every physician. Such improvement if it be of advantage to but a small proportion of cases for which it seems theoretically applicable, claims careful consideration.

There have recently appeared in the daily journals of the East and the West so many notices of public demonstrations, in which it is said the deaf are made to hear by means of the audiphone, that I have thought it might be of interest to members of this society to know definitely on what basis these reports rest.

It is generally known that some patients can hear a watch, held between the teeth or in contact with some portions of the head, better than when it is placed quite near the ear.

It is not so well known that a few patients, who cannot hear loud conversation, can converse readily through the medium of a small piece of wood, twenty inches, more or less, in length, one end being held between the teeth of the patient, the other end between those of the person conversing with him. The vibrations of sound are conducted through the tissues of the head to the auditory nerve. The use of the audiphone is based on the principle involved in these experiments.

The instrument is a thin but quite large plate of black vulcanized rubber, to which is attached a handle. The whole may be said to resemble a square fan.

By means of cords and a clamp near the handle, the upper edge of the thin portion may be brought downward, causing the whole plate to curve. The fan in this form is usually placed with the concave portion turned toward the person using it, the upper edge being gently pressed against the upper (eye)teeth.

The vibrations of the fan produced by sound are conveyed through the teeth and bones to the ears.

According to my own observation and that of those upon whose testimony I can rely, the number of the deaf, who are thus practically benefited is exceedingly small. Occasionally a patient is aided in hearing to a remarkable degree.

Published statements regarding the extraordinary results in the use of the audiphone should be received with great reserve. Some of these statements are gross exaggerations. Poor patients, especially, should be cautioned not to waste their means in purchasing the instrument before they have tried it, for it will certainly, in a majority of cases, disappoint them.

I have heard of patients whose hearing was improved by the use of a sheet of bristol-board, a broad plate of wood or of a Japanese fan, bent to a proper curve (tension) and placed in contact with the teeth.

It is doubtful whether the most approved form and material for this instrument has yet been discovered.

Possibly a round fan with a delicate rim of steel, the whole so constructed as to resemble in form the natural membrana tympani (concave) might be more beneficial and graceful than that now in use.

Possibly also a piece of hard rubber or other substance attached to the disc (fan) as the malleus is attached to the membrana tympani, might be a better medium for conveying the vibrations to the teeth.

It may be that the efficacy of the audiphone (and dentaphone) may be increased in some cases by closure of the external meatus as in certain experiments with the tuning-fork.

Another instrument, the dentaphone, constructed on scientific principles, is composed of a vibrating disc enclosed in a case resembling the mouth-piece of an ordinary telephone. Attached to the center of this disc is one end of a cord; the other end of the cord is fastened to a small piece of wood. The vibration of the disc, communicated through the cord to the piece of wood held between the teeth, is conveyed to the auditory nerve.

It is stated on reliable medical authority that this contrivance compares most favorably with the audiphone.

It may not be out of place to make brief allusion to the means which have been devised to improve the sense of hearing.

These are chiefly the ordinary trumpet and the artificial membrana tympani.

The action of the trumpet is too well understood to require comment. I will only state that each patient must try for himself the various forms of the instrument and select the one with which he hears best.

The artificial membrane is usually a simple disc of rubber or fish scale, to the center of which is attached a delicate style of metal or rubber. In place of this little instrument a small pellet of cotton, properly adjusted in the external meatus is often employed. These are used not only to improve hearing but also to protect ulcerations from the air and assist in the curative process. It is remarkable to what extent these simple means will, in exceptional cases, improve hearing.

I may state that all forms of auricles, vibrators, and invisible tubes so often advertised in exaggerated terms as enabling the deaf to hear distinctly are almost absolutely valueless.

The audiphone is an invention of Mr. R. S. Rhodes, of Chicago. The dentaphone is manufactured in Cincinnati.*

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The Prognosis of Cæsarean Operations is the subject of an article by Dr. Lusk of New York in the January number of the *American Journal of Obstetrics*. In this paper Dr. Lusk, after recounting the results obtained by various well-known operators and analyzing the details given of the cases, arrives at the conclusion that the operation has been frequently performed in unhealthy maternity hospitals, and also frequently on patients that were beyond hope of recovery before the operation was commenced. He argues that it is unfair to blame the Cæsarean operation for fatal results when the conditions were so unfavorable that any operation would have gone wrong.

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* While writing the above some weeks ago, I had read no article on the subject except the one by Dr. Turnbull, in the *Archives of Otology*. Subsequently I received a reprint of an article by Dr. C. H. Thomas, from the *Philadelpha Medical Times*.

# Clinical Reports.

## NOTES FROM HOSPITAL PRACTICE.

### ARTICLE V.

MERCY HOSPITAL. IN THE SERVICE OF PROF. N. S. AND DR. F. H. DAVIS. (REPORTED BY E. C. HELM, M.D.)

*Typhoid Fever.*

Fully one-half of the cases of typhoid fever treated in Mercy Hospital during the past few years have had no diarrhœa, some being constipated during the entire course of the disease and others having one natural daily movement of the bowels.

Of the cases of diarrhœa, those in which there was copious hæmorrhage from the bowels during the second or third week were regarded as being in the greatest danger, particularly if the tongue became very dry and brown, with sordes on the teeth, low muttering delirium, subsultus tendinum, and sudamina on neck and chest.

The last mentioned symptoms being regarded as almost surely indicating speedy collapse.

The treatment has been: 1. Hygienic. 2. To prevent deterioration of the blood. 3. To restore the natural secretions. 4. To reduce the temperature. 5. To control the action of the bowels. 6. To maintain innervation. 7. To control the action of the heart.

The air is kept pure and wholesome, at as nearly as possible a uniform temperature of 65°—70° F.

The bedding and underclothing are kept clean—are aired and changed frequently.

All excretions are at once removed from the ward.

The patient is kept clean, cool, and as comfortable as possible, by frequent spongings with tepid water, to which is added salt, or preferably vinegar, thereby partially controling the temperature, favoring diaphoresis and greatly adding to the comfort of the patient.

They are fed with the blandest nourishment, such as milk, thin wheat or oat-meal porridge, beef tea, etc., but the main reliance is placed upon the milk, beaten up with the white of an egg and sugar. From (ʒi–ij) four to eight grams of this are given four or five times a day during the first week, after which smaller quantities, from (ʒss–i) two to four grams, are given every hour, as starvation is believed to have a prominent place in the causes of death from typhoid fever.

When thirsty, the patients are given small pellets of ice to hold in the mouth; milk-whey, or better still, buttermilk, is often given, thus forming a cool, pleasant, yet diuretic drink.

For the first day or two potas. chlorate, (gr. iii) .250 gms. and acid hydrochloric, (grs. ij–iv) .130 to .250 gms. every three hours, alternating, if the bowels are constipated with minute doses of calomel and ipecac. If, on the contrary, the bowels are loose, pulv. dov. is used.

After the first thirty-six hours:

| | | | *Gms.* |
|---|---|---|---|
| ℞ | Acid salicyl..... | (ʒss) | 15 |
| | Sod. bicarb..... | (ʒijss) | 10 |
| | Glycerinæ ..... | (ʒx) | 40 |
| | Aquæ ..... | (ʒiv) | 120 |

A dessertspoonful of this is given every two to four hours, alternating with spongings.

This is continued until the temperature is reduced to 100° F. and then just enough of the salicylic acid is used to keep it there.

Should there be much diarrhœa, enough tr. opium is added to check it.

Tr. digitalis is usually added to the above formula to act as a diuretic, but more especially to keep the heart within bounds. Digitalis has been found especially beneficial when the heart was very weak and feeble. Should the tr. digitalis be not sufficiently diuretic, liquor ammon. acet. or spts. æth. nit. is added.

During the second week, if the bowels are very loose :

| | | Gms. |
|---|---|---|
| ℞ | Olei terebinth.....(ʒiii) | 15 |
| | Tr. opii.....(ʒv) | 20 |
| | Olei gaulth.....(ʒss) | 2 |
| | Pulv. acaciæ.....(ʒi) | 30 |
| | Sacch. alb.....(ʒi) | 30 |
| | Aquæ .....(ʒiv) | 120 |

Of this (ʒi) four grams is given every four hours. This has usually promptly controlled the bowels, but in a few cases the turpentine has disagreed with the stomach or caused symptoms of strangury. In these cases it was promptly discontinued and a pill consisting of

| | | Gms. |
|---|---|---|
| ℞ | Argent nit.....(gr. $\frac{1}{3}$) | 02 |
| | Ext. Hyoscyam..... | |
| | Pulv. opii.....(āā gr. j) āā | 06 |

substituted.

The nitrate of silver is not continued long, as permanent discoloration of the skin is feared, but after three to six days is replaced by

| | | Gms. |
|---|---|---|
| ℞ | Acid sulph. arom., magnes. sulph..... | |
| | Tr. opii.....(ʒij) āā | 8 |
| | Syr. simp..... | |
| | Aquæ ..... (ʒi) āā | 30 |

Of this a teaspoonful is given every three to four hours while the diarrhœa lasts.

Should low, muttering delirium, subsultus-tendinum, petechiæ, etc. ensue, indicating nerve failure, the patients are given

| | | Gms. |
|---|---|---|
| ℞ | Strychniæ sulph.....(gr. $\frac{1}{32}$) | 002 |
| | Acid nitric..... .....(gtts. iij) | 2 |

every two hours.

Brandy or any of the other so-called alcoholic stimulants are not given, as it is believed that they have a positively depressing effect, and in too many cases turn the scale of the patient's life toward a fatal end.

The diffusible stimulants, notably arom. spts. of ammon. or carbonate of ammon., are freely used and with decided benefit.

The results of the above treatment have been decidedly favorable, the death ratio being much below that given as the average, in hospitals where alcoholic remedies are freely used.

Large doses of quinine, or cold baths have been found to be efficient, yet dangerous, methods of reducing the temperature, the quinine often enfeebling innervation, while the shock and subsequent reaction following the use of cold baths, have more than counterbalanced its good effects.

During convalescence, if the patients are constipated, they are given

| | | Gms. | |
|---|---|---|---|
| ℞ | Ext. Hyoscyam..... | | |
| | Ext. Leptand..... | | |
| | Ferri. sulph. ext.....(gr. i) āā | | 06 |
| | Ext. nux vom.....(gr. ½) | | 02 |

S. One at night.

If the bowels are loose they are given

| | | Gms. | |
|---|---|---|---|
| ℞ | Strychniæ.....(gr. i) | | 06 |
| | Acid nitrici .....(ʒ i) | 4 | |
| | Tr. opii .....(ʒss) | 16 | |
| | Aq. and syr. q. s. ad.....(ʒ iv) | 120 | |

Mix. S. Teaspoonful three or four times a day.

Some of the bitter tonics, as tr. cinch. comp., are found of use. Special attention is paid to diet during convalescence, the food being plain, wholesome, nutritious, yet bland and unirritating. The patients are to avoid exposure to drafts of air, inclement weather or over exertion for several weeks.

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## ARTICLE VI.

*Treatment of Indolent Buboes.*

Every surgeon engaged in hospital practice has had his patience tried by the obstinacy of that class of buboes termed indolent or chronic. Such buboes will neither suppurate nor recede, in spite of treatment, and it is not unusual to see patients thus affected remain in hospital for six months and longer. Many surgeons, after exhausting all methods of treatment calculated either to

cause the suppuration of the gland or the absorption of the inflammatory products, such as the local application of iodine, nitrate of silver, blisters or continuous pressure by a bag of shot suspended from the ceiling, have recourse finally to the knife and extirpate the gland. This latter practice unquestionably removes the trouble, but I am led to believe from a somewhat extensive experience, is very apt to be followed by a severe grade of erysipelas. Even if the patient is fortunate enough to escape an attack of erysipelas, the wound left after the removal of the gland granulates very slowly, and generally eight weeks elapse before cicatrization is completed.

While stationed in San Francisco, I treated a number of indolent buboes by introducing needles attached to a galvanic battery, as recommended by Beard and Rockwell, but with very limited success. The pain accompanying this procedure is intense, even more so than that caused by destroying the bubo with chloride of zinc pastes or other powerful caustics. During the past year I have treated all such buboes occurring in my wards at Philadelphia and my present station, Portland, Maine, by a simple method, which has afforded better results than any other treatment mentioned. Through the indurated gland I introduce from three to four setons, the materials being either a stout piece of tape or silver wire, tied in a short loop, drawn backward and forward through the gland twice daily and covered with a flax-seed poultice. The setons are allowed to remain from seven to ten days, or longer, suppuration occurring generally the third day, with a rapid diminution in the size of the bubo. The results of this treatment have so far been very successful, fully 80 per cent. of the cases thus treated being cured within six weeks from the date of admission. With the exception of introducing the setons, no pain is experienced, and the patient is directed to walk about as much as he pleases, to encourage suppuration.

I am unable to state whether this treatment has been used by others, but from the results thus far attained, I am free to recommend surgeons to give this method a fair trial, believing it to be a safe and satisfactory treatment of indolent buboes.

EDMUND J. DOERING,
Surgeon U. S. Marine Hospital Service.

## Notes from Private Practice.

### Article VII.

*Excision of Spina Bifida Tumor—Cure.*

Although this operation has apparently in this case, resulted in success, I do not report the case thinking any one will imitate my practice, but that the mistake may be avoided in similar cases.

Mrs. D., from the country, brought her child one year old to me, Nov. 24th, 1879, to get advice concerning a tumor on the child's back, in the lumbar region of spine; said they had not noticed the tumor until some time after birth; that it had grown with the growth of the child; that it gave it no inconvenience, except that pressure occasionally caused the child to cry; that it was not accompanied by paralysis of any organ or muscle.

Upon inspection, I found a tumor over lumbar spine about ($2\frac{1}{2}$ in.) six cm. long transversely, four cm. vertically and projecting ($1\frac{1}{2}$ in.) four cm. above surrounding surface and pointing somewhat upward along the spine spreading out at its base into dense, apparently infiltrated tissue. Quite a number of hairs from ($\frac{1}{2}$ in. to $1\frac{1}{2}$ in.) one to three cm. long grew on the tumor near its junction with the back. The tumor was inelastic, non-fluctuating, incompressible in any position of the child, crying or quiet. The absence of any signs of spina bifida except location, led to its removal. Its increased size began to be a source of annoyance and the reddish appearance of the apex of the tumor caused me to fear ulceration. I imagined it to be some species of sarcoma. As the case seemed a little anomalous, I invited three other physicians to examine the case at the time of operation, all of whom concurred in the advisability of its removal. Accordingly on Nov. 25th, the child was chloroformed and an incision was made around the tumor nearly ($\frac{7}{8}$ in.) two cms. from its union with the back, to remove as much as possible of infiltrated tissue in which the tumor seemed deposited. The sensation conveyed to the knife, was as if cutting fibrous dense tissue and not adipose with which the child was abundantly supplied. From the bottom of the wound

there welled up a stream of limpid fluid, and it was at once manifest that I had opened a hernia of spinal membranes; in other words, I had to deal with a spina bifida. A ligature was put around the duct, the wound brought together by sutures, compress and bandage applied.

Nov. 26.—Found the bandages and compresses thoroughly wet, as well as several other cloths that had been applied. It was evident that the ligature had come away, and that spinal fluid was being lost in considerable quantities. The child had slept well and took nourishment as usual.

Nov. 29.—From the number of pads, compresses and cloths saturated with this now clear fluid, I judged the amount escaping must have been three pints, although the ladies in attendance assert double the amount. I have since been sorry that the quantity was not collected, as it seemed enormous. The child has lost flesh during last four days and grown pale; appetite fitful, pulse 130, temperature normal; starts some in its sleep; sutures removed, union seemed complete except at one angle, where fluid was discharging. Rubber-coated adhesive plaster was applied and compresses. Ordered (℥iss) six grams cod-liver oil and (℥i) four grams elixir çalasayæ and iron, three times a day.

Nov. 30.—Found adhesive straps off and wound opened to about original size.

Dec. 2.—Have tried various kinds of adhesive plaster, but some constituents of the fluid detaches them, whether applied by heat or moisture. Ordered that the wound be dressed with carbolated oil. It has shown no disposition to heal although the amount of fluid for last twenty-four hours has considerably diminished. Child looks very feeble.

Dec. 5.—The duct probably closed yesterday, as the flow ceased and wound is contracting rapidly. Child looks somewhat brighter.

Dec 10.—Wound pretty much cicatrized and child regaining flesh and strength as rapidly as it lost it; returns home to-morrow.

The base of the tumor was cavernous, i. e., the canal leading from the spine was dilated into a cavity as large as a hazel-nut, from which there were prolongations in various directions, but

none of these extended upward into the tumor proper, or into that part of it projecting above the surface of back. It is now three months since the operation, and the child is well.

ROCKFORD, ILL. W. H. FITCH, M.D.

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## ARTICLE VIII.

*Obstruction of Bowel, probably Intussusception, relieved by Aspiration.*

Oct. 21st, 1879, was called in consultation with my friend Dr. Fowler, of Scales Mound, Ill., to visit William Bird, aged 37, an English miner. A week previous to my visit he spent the evening at a friend's house, returned home in apparently good health, and went to bed. Was taken suddenly in the night with severe pain in the bowels and vomiting. Supposing the case to be cholera morbus, or some similar disease, he took some of the usual domestic remedies, but failing to obtain relief, called Dr. Fowler, his family physician, on the following evening.

The nature of the case was at once recognized by this gentleman, who prescribed appropriate treatment.

He was shortly afterwards seen by Dr. August Weirich, of Galena, who confirmed Dr. Fowler's diagnosis of obstruction from a band or intussusception. He gradually got worse, and when I first saw him was laid in bed on his back, partly dressed, knees drawn up, the pulse was quick and small, the countenance pinched and anxious. There was constant vomiting of a greenish yellow liquid, with a horribly offensive fæcal odor, which penetrated the whole house. The abdomen was swollen and quite tender. There was distinct fluctuation and dullness on percussion over the whole course of the colon. The umbilical region gave a slightly tympanitic resonance. There was very frequent tenesmus which caused the patient to jump up constantly and strain on the vessel, the only result being a little bloody mucus.

After careful examination for hernia, which I did not find, I diagnosticated an obstruction at or near the sigmoid flexure, and proposed aspiration of the colon, an expedient which was readily agreed to by the patient and his friends.

I used the largest needle of Codman & Shurtleff's aspirator,

puncturing first in the left and afterwards in the right iliac region, drawing off a pint of liquid similar in character to that vomited, but more concentrated, the vomited matter being diluted with water taken to quench the constant tormenting thirst. I directed a seidlitz powder to be given by enema, injecting first the alkaline powder and follow it immediately by the acid. I hoped by this means (the pressure of liquid being taken off from above) to dilate and unfold the bowel, and also to obtain the sedative effect of the carbonic acid on the bowel. The material necessary was not at hand, and as I learned afterwards, the enema was not efficiently given, no plug or pad was used and the nascent gas escaped at once per anum.

Immediately after the aspiration, at 3 p. m., he declared himself somewhat relieved. The vomiting continued at longer intervals till 9 o'clock, when, under the influence of a hypodermic injection of morphia administered by Dr. Fowler, he fell asleep, and had a comfortable night.

I saw him again at noon on the 22d. He had not vomited since nine the previous night, his abdomen was natural in appearance, all swelling and tenderness had disappeared, no tenesmus, and he had more appetite than it was thought prudent to gratify. The effect of the morphia was continued, by small doses, by the mouth. His bowels moved on the third day, and he was able to be out in less than a week.

I may add, that this result was a pleasant surprise, both to myself and Dr. Fowler, and I desire to put it on record as a simple and innocuous proceeding which may be tried before proceeding to graver operations demanded by this formidable accident. Very respectfully, HENRY F. GODFREY, M.D.

BENTON, WIS., Feb. 13, 1880.

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## ARTICLE IX.

### *Was it Dilatation of Left Ventricle?*

MESSRS. EDITORS:—I ask the above question and would like through your columns to get some ideas from some of your readers who take more special interest in heart troubles than I have

done. February 22d, I was called to see John H——, previously as hearty, strong and robust a man as could be found in the State. His statement was, that two days before, while chopping down pine, he began racing with another party and worked all day exerting himself to his utmost. That night he did not sleep at all but had no pain or distress; next day he went to work but was obliged to stop at noon, and went home. It was the following morning that I saw him. He presented the appearance of a person with general dropsy in the last stages of valvular disease of the heart. His legs, feet, hands, arms, and even face were as distended as they could well be; and all this effusion came on in one night only. He complained of some distress for breath. Respiration was slow, and pulse 30. I examined the heart and found but a slight murmur, or whistling sound with the second sound of the heart. The heart's action was labored but regular, the left ventricle taking a long time to contract. Pulse although only 30 per minute, was very full and strong. I could count it by watching the tremor or jar of the whole arm. I put him on syr. iodide of iron; also gave iodide of potassium. For diuretics used pot. nitrate and pot. acet. on alternate days; used calomel and jalap as hydragogue cathartic each night. Under this treatment the third day the pulse was 45; sixth day 58, gradually improving until to-day pulse is 70, with but slight anasarca towards evening. I have examined no less than twelve different authors on cardiac diseases and cannot thus far find a similar case, and in fourteen years practice I have never seen anything resembling it. I had good counsel in the case, and it was also new to the gentlemen summoned.

K. J. Thomas, M.D.

Greenwood, Wis., March 12, 1880.

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The editor of the *Journal of Nervous and Mental Diseases* will pay seventy-five cents each for copies of the first issue of that publication—January, 1874. Address, Dr. J. S. Jewell, 70 Monroe Street.

# Society Reports.

## ARTICLE X.

BRAINARD DISTRICT MEDICAL SOCIETY met in Mason City, Illinois, January 22, 1880. Present, Drs. H. B. Brown, C. H. Norred and R. M. Wilson, of Lincoln; Dr. S. T. Hurst. of Greenview; Dr. J. D. Whitley, of Petersburg; Dr. Ch. B. Maclay, of Delavan, and Drs. J. P. Walker, A. M. Bird, W. P. Walker, J. W. Spear and J. A. Walker, of Mason City. The president, Dr. Newcomer, being absent, Vice-President Whitley presided.

The constitution and by-laws, amended at a former meeting, were read by Dr. Wilson, chairman of committee, adopted and one hundred copies thereof ordered printed.

Dr. Whitley presented a supplementary report and photograph of a case of pleuritis requiring operation, reported at last meeting. Secretary instructed to forward Dr. Whitley's case and photo. to CHICAGO MEDICAL JOURNAL AND EXAMINER.

Dr. S. T. Hurst reported an interesting case of hydrocele, treated by tapping. On tapping the third time, found his hydrocele had become an hæmatocele. After evacuating, he thoroughly kneaded the scrotum, and sent the patient home. Complete recovery in three weeks, without any further treatment.

The afternoon session was devoted to the discussion of scarlatina, participated in by nearly all of those present. Dr. Whitley spoke very strongly in favor of the sulpho-carbolate of soda as a prophylactic; had seen very marked proofs of its value in his own practice.

Scarlatina will be the special subject for discussion at next meeting, April 22, 1880, at Mason City, Ill,

J. A. WALKER, *Secy.*

# Domestic Correspondence.

## ARTICLE XI.

## PHILADELPHIA LETTER.

*Editors of the* CHICAGO MEDICAL JOURNAL AND EXAMINER:

The annual commencement of our two medical schools is a matter of general public interest as well as the event of the year in professional circles. Philadelphia is a small city, whatever may be the number of inhabitants which the census allows her. The intelligent, thinking portion of the community is far more compact and homogeneous than in most American cities of the first class, and any event of an academic nature is a topic of general interest and town-talk. On the morning of commencement, in either of the schools, the neighborhood of the Academy of Music, which is in the center of the city, presents a lively appearance. Flowers in bouquets, baskets, horse-shoes and what-not forms, mysterious packages of various kinds, the anonymous gifts of friends and relatives of the graduates, are handed in at the doors in great quantities. Towards noon the streets in the neighborhood—even gay and crowded Chestnut street, show a more festive aspect, and groups and parties of ladies, all pressing in the same direction, show that an event of general public interest is about to transpire. When one arrives at the door of the building, knots of students are found gathering about while waiting in the large ante-room known as the "foyer," the graduates are assembled, clad in the Oxford academic gown and "mortar-board" hat, and looking, it must be admitted, as well as they ever did in their lives. At one end of the foyer, the trustees, faculty and alumni gather, and there may be seen—I

speak of the University now—a group of prominent and public-spirited men, former merchants for the most part, but men of education whose grey and venerable heads are always to be seen in public assemblies when the common weal is to be forwarded. Probably none of these gentlemen is better known than our late Minister to England, the Hon. John Welsh, whose suave and agreeable presence lends an element of refinement to any gathering. Among the medical men one may see Stillé, whose clear-cut features, high forehead, and white beard, make him a conspicuous object in his velvet gown. I fear this is his last appearance in the procession of commencement day, for I understand that his resignation, presented last year and withdrawn again at the urgent solicitation of the friends of the University, has now been irrevocably determined upon. Agnew, Professor of surgery and rival of Gross in ability as a teacher and in popularity among the students, is also conspicuous from his tall, somewhat stooping figure, fine, bald forehead, surrounded by a fringe of snow-white hair, and with a heavy, white moustache. I believe this exhausts the list of white heads in the University, for we have a young faculty. Pepper, Professor of Clinical Medicine, has a small, light figure, and almost youthful face, of extremely quick and mobile cast, and showing the active brain, never for an instant at rest. Horatio Wood, Jr., is scarcely older-looking, although his full, black beard gives him a more mature look, and, like Pepper, every movement shows the active mind. Looking at him, one can understand the almost morbid craving for work which could induce a man who had written a work on therapeutics, published an investigation on "Fresh Water Algæ of the United States," in the "Smithsonian Contributions to Knowledge," thrown off a "Boylston Prize Essay" and a popular magazine article simultaneously, while at the same time attending to a considerable practice, hospital and private, and delivering a course of lectures as Professor in the University—not to speak of editing a medical journal, to complain bitterly that he was "rusting for want of occupation." Goodell, the obstetrician, whose fine, portly figure and head, with his full brown beard, gains additional picturesqueness from his academic costume, and Norris, the ophthalmologist, are conspicuous figures. Among the other members of the faculty

who are in all probability known by reputation to your readers, is Duhring, the dermatologist, and Harrison Allen, professor of physiology, who is the orator of the day—the valedictorian. The procession takes its line of march through the corridors to the stage, and the 111 graduates take their seats in the body of the house, directly in front. Looking from the stage, the sight is a very impressive one; the huge Academy, holding some three thousand persons, is packed tier above tier to the roof, and presents a most brilliant spectacle.

But I will not weary your readers by relating the incidents of a medical commencement, with which they are in all probability extremely familiar. Before the ceremony had begun, I took occasion to scan the list of graduates, and noted the titles of the thesis in each case, marking those which seemed likely to gain distinction. I should say here that various prizes and distinctions, to the number of about sixteen, marked the standing of those who took the honors. I was surprised, when listening to the list of awards, to observe how many of my surmises had proved correct. The subjects of these theses were such as the following: "The Depressor Nerve," "Reparatory Inflammation in Arteries after Ligation," "Physiological Action of Eucalyptol," etc., showing that the effort to study carefully some one subject had resulted in making a worthy contribution to medical knowledge. The unfortunate wight who expects to astonish the world with his original views on "Diphtheria," or "The Origin of Yellow Fever," is apt to be much disappointed at not hearing his name when the honor-list is read at commencement. The valedictory by Prof. Allen was a brief review of the recent progress of medical science, with allusion to the increasing field for public usefulness constantly opening before the profession, as the community at large appreciates more and more the advantage of trained scientific knowledge.

The commencement of the Jefferson Medical College which took place a day or two ago was also a very successful one, although somewhat saddened by the thought that the poet valedictorian of last year, Prof. J. Aitkin Meigs, had since died. A large class, 196 in all, graduated; not quite so many, however, as in previous years. An addition to the faculty has been

announced, Dr. Willliam Thompson having been chosen Honorary Professor of Ophthalmology.

The Pennsylvania Hospital situated in the heart of the older part of Philadelphia and worthily renowned for the skill of its surgeons, has always been the center of Philadelphia surgery. It is a pity that more has not come from the advantages enjoyed by the surgeons connected with this hospital, but it must be confessed that except for the admirable clinical lectures which are delivered there twice a week to students from both schools, the profession has not greatly benefitted by the experience of its surgeons. About twelve years ago the publication of a yearly volume of "Hospital Reports" was projected and carried out as far as two volumes, the further publication ceasing for want of funds. The two handsome volumes which remain as relics of this abortive attempt to render the experience of the hospital of general avail, may still be found in the book shops of the city or occasionally bought at auction for a trifle. They contain some very good papers. Recently the surgeons of the hospital have decided to make use of some at least of the valuable material which had accumulated for many years and have published a volume entitled "Surgery of the Pennsylvania Hospital," edited by Drs. Thos. George Morton and William Hunt. This is an octavo of some 350 closely printed pages containing an epitome of the practice of the hospital since 1756; including collections from the surgical notes and an account of the more interesting cases from 1873 to 1878; with some statistical tables. The record of the surgery of the hospital includes 1011 amputations performed in the last fifty years. Of these there were eight of the hip-joint. The rate of mortality for the entire number was 24.43 per cent. The method employed in the treatment of cases, the form of operation preferred, etc., with various tables are given. Following this there are accounts of the various forms of disease and of certain operations performed by the surgeons, giving a mirror of the practice of the institution and containing much that is practical and suggestive. Dr. Morton gives a description of a curious "painful affection of the foot," when the fourth or occasionally the third metatarso-phalangeal articulation is affected by severe pain usually brought on by long walking but occasionally appear-

ing spontaneously, intense in character, "cutting to the heart," accompanied by faintness and cold sweat. There is absolutely no external symptom. Usually the feeling is that of the bones being dislocated but no dislocation can be perceived. Dr. Morton attributes the affection to a bruising of the filaments of the digital branches of the plantar nerve by the contact of the fourth and fifth metatarsal bones.

When this form of neuralgia has been caused by injury, local treatment, rest and anodyne applications may be used; a broad low heeled shoe lacing up the front should be worn. A narrow flannel bandage applied around the foot so as to firmly but moderately support the toe and prevent rolling or friction of the joints is also useful. But in severe cases no treatment except excision of the metatarso-phalangeal articulation, or amputation of the toe with the removal of the joint in question will likely be of any service. The cases subjected to operation all do well and there is no return of the neuralgia. An interesting case where section of the sciatic nerve was performed for elephantiasis arabum of the leg with a certain amount of success is recorded. I am tempted to make a number of excerpts from this volume which is full of interest and practical value, for I think it hardly likely to be seen by many of your readers. But I must content myself by pointing out several features of practical value. The methods of treating fractures employed in the hospital and especially those which are peculiar to it are given at some length and various forms of apparatus are figured. In fact one of the features of the book is the frequent description of procedures peculiar to the locality, "little dodges" and "wrinkles" employed by the surgeons and instruments devised by them. I am not writing a criticism on the the work and so shall not allude to its short-comings. It reminds me of the chat of the consultation room rather than the systematic description of disease and treatment. I venture to call the attention of your readers to the work, being quite sure that it will be found to contain much that is new, and to be rich in practical suggestion.

I believe that in Chicago you are quite ahead of us in all matters relating to public health, and that we have nothing new to tell you upon that point. But it may interest your readers to

know that the general impulse which has of late been given to sanitary science has affected the community of this city. Our board of health is almost equally composed of honest hard-working competent physicians and crafty politicians. The result is a constant struggle between the powers of good and evil which is as undecided in its limited sphere as in the world at large. Just now the medical men appear to have the upper hand, and one or two minor reforms have been made which have increased decidedly the comfort and health of our citizens. One of these is the proper cleansing and ventilation of our street-cars. All Philadelphia rides twice a day in the cars which run in all our streets small and large, and that these cars should be decidedly comfortable and healthy is in the highest degree desirable. But there has been no means of ventilating these vehicles until recently a stove has been devised which stands half inside half in front of the car for the comfort of the driver. A constant current of fresh air passes around this stove, heating and ventilating the car at the same time. The time-honored custom of strewing hay to the depth of a foot or more over the bottom of the car has also been stopped by order of the board of health. No one who has not experienced it can guess the disgusting condition of this hay. Trodden under foot by dozens of filthy feet, defiled by constant expectoration of tobacco juice or even of diseased saliva, the mass of reeking foulness must be waded through by all, even refined ladies, to whom it became in time a sort of torture to enter these vehicles. In addition as the augean conglomeration of filth became tramped over, at the end of a trip fresh hay was piled on top, and the rotting mass left to decompose beneath. We thank the board of health for relief from this plague from the bottom of our hearts. A positive measure of public benefit which is also to be carried out is the establishment of public baths in various parts of the city. In a future letter I shall describe these to you at length.

PHILA.

## Article XII.

*Editors* Chicago Medical Journal and Examiner:

In my article on the gynæcology of the seventeenth century, I said in conclusion that one would be led to think the Dr. Courrade must have known and used the speculum because he described so accurately granulations, ulcerations, etc., of the collum uteri. But I certainly did not mean to convey the impression that the speculum was unknown up to that time, and consequently a product of much more recent inventive genius. I meant only that it was eclipsed in the general darkness of mediæval times. The speculum (*speculum ani et vaginæ uteri*) was known long before the Christian era. Ætius, who flourished in the sixth century A. D., and Paul of Ægina, his successor, describe the instrument and its uses distinctly, and specula have been unearthed from various ruins, including a bivalve, which is now preserved in the Museo Borbonico.

"Probably all wit and all wisdom have often been fully explored and again quite forgotten," said Aristotle two thousand years ago, and it is doubtless true.

It is to be regretted that so little attention is given now-a-days to the history of medicine. It is possible that our pride might sometimes be mortified in the presence of facts, which were worn out and thread-bare when Arabians, Egyptians, Greeks and Romans were in their glory, and which to the modern world are, to say the least, not fully understood.

Notwithstanding what I have said above about the speculum as being a product of classic genius and an important factor in the present *renaissance*, it is nevertheless my firm conviction that, with the evolution of the sense of touch, the speculum, except for strictly surgical purposes, will be regarded as a relic of barbarism, and that he will be a poor diagnostician who will not be able to come to a correct conclusion concerning os-uterine and vaginal conditions by the aid of the sense of touch alone. In fact, I think we might now save a good deal of physical, to say nothing of moral torture, by trusting more to digital, which, in the light of modern psychology, means mental impressions.

Chicago, March 3, 1880. Dr. James I. Tucker.

# Reviews and Book Notices.

ARTICLE XIII.—PHOTOGRAPHIC ILLUSTRATIONS OF SKIN DISEASES. By GEO. HENRY FOX, A.M., M.D., Clinical Professor of Dermatology, Starling Medical College, Columbus, Ohio, etc., etc. *Part* 5. Eczema Infantile; E. Papulosum; E. Ichorosum; E. Pustulosum, and E. Squamosum. *Part* 6. Eczema Barbæ; E. Manum; E. e. Venis Varicosis; Ulcus Varicosum; Psoriasis Annulata.

The lately published parts of this admirable atlas of colored skin portraits, are fully equal in merit to those which first were placed in the hands of the profession, and which gave promise of so much in the future. We have heretofore had occasion to notice the latter with an expression of our approval and pleasure. If any one who happens to inspect them, feels inclined to take exception to the contrast between the symptoms exhibited by the art of the photographer and those portrayed by the skill of the lithographer, he should remember that, after all, the photograph exactly represents the phenomena, color excepted, and that the classical symptoms displayed in several of the chromolithographs are, as a matter of fact, rarely seen in the consultation-room of the practitioner or in the clinic of the college or dispensary.

In the portrait of eczema of the palm, the character and extent of the skin infiltration is admirably shown; but one of the best of this series is the portrait of eczema of the beard, which is so truthful that one with little experience in these matters, could almost make a differential diagnosis between the disease represented and that produced by either a vegetable parasite or constitutional syphilis.

We congratulate the author, and his co-laborer in the matter

of coloring, Dr. J. Gaertner, upon the success which they have attained not only on paper, but in the large demand for the work which the publishers have been sufficiently fortunate to satisfy.

J. N. H.

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## Books and Pamphlets Received.

A System of Medicine. Edited by J. Russell Reynolds, M.D., F.R.S., with Numerous Additions and Illustrations by Henry Hartshorne, A.M., M.D. In three volumes. Vols. I and II received. Philadelphia: H. C. Lea. 1879.

The Causes and Results of Pulmonary Hæmorrhage with Remarks on Treatment. By Reginald E. Thompson, M.D. London: Smith, Elder & Co., 15 Waterloo Place. 1879.

The Hypodermic Injection of Morphia; Its History, Advantages and Dangers. By H. H. Kane, M.D. New York: Chas. L. Bermingham & Co. 1880.

Annual Report of the Supervising Surgeon-General of the Marine Hospital Service of the United States, for the Fiscal Years 1878 and 1879.

Proceedings of the Louisiana State Medical Association at its Second Meeting, Held in the City of New Orleans, April 9th, 10th and 11th, 1879, with the Constitution and by-laws.

Mansill's Almanac of Meteorology and Planetary Phenomena, for the Year 1880: and New System of Science. By Richard Mansill, Rock Island, Ill. R. Crampton, Publisher. 1880.

On the Internal Use of Water for the Sick, and on Thirst. A Clinical Lecture at the Pennsylvania Hospital, October 25, 1879. By J. Forsyth Meigs, M.D. Philadelphia: Lindsay and Blakiston. 1880.

Transactions of the Wisconsin State Medical Society, for the Year 1879, with its Constitution and By-Laws. Vol. XIII; 1879.

Transactions of the Medical Association of the State of Missouri, at its Twenty-second Annual Session, held in Columbia, Mo., May 20 and 21, 1879.

Transactions of the American Ophthalmological Society; Fifteenth Annual Meeting. Newport; 1879.

Primer of the Clinical Microscope. Boston Optical Works. By Ephraim Cutter, M.D.

Pacquelin's Thermo-Cautery with Wilson's Antithermic Shield in Epithelioma of the Cervix Uteri. By H. P. C. Wilson, M.D., Baltimore, Md.

Malignant Degeneration of a Fibroid Tumor of the Uterus. Large, False Aneurism in the Substance of the Growth. Drs. Albert N. Blodgett and Clifton E. Wing, Boston.

State Medicine and State Medical Societies. By Stanford E. Chaillé, A.M., M.D., New Orleans, Louisiana. Extracted from the transactions of the American Medical Association.

The Fallacies of Popular Clinical Medicine, an Introductory Lecture delivered at the Long Island College Hospital, Brooklyn, New York, February 5, 1880. By Jarvis S. Wright, M.D.

The New Anæsthetic—The Bromide of Ethyl. By R. J. Levis, M.D., Surgeon to the Pennsylvania Hospital, etc.

First Annual Report of the Central Board to the Philadelphia Society for Organizing Charitable Relief and Repressing Mendicancy. October 1, 1878.

The Second Annual Report of the Presbyterian Eye and Ear Charity Hospital, Baltimore, Md., for the year of 1879.

Report on the Revision of the U. S. Pharmacopœia, Preliminary to the Convention of 1880. By Charles Rice, Chairman of the Committee. New York: 1880.

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NEW TREATMENT OF DIPHTHERIA.—M. A. Cornilleau. (*Rev. de Thér. Méd. Chir.* and *Rev. Méd.*, Jan. 24, 1880.)

The attention of the profession is called to the treatment of diphtheria with oxalic acid and oxalate of potassium.

The author's formula is as follows:

| | | *Grams.* | |
|---|---|---|---|
| Pure oxalic acid | (ʒj) | 1 | 50 |
| Infusion of green tea | (℥iv) | 120 | |
| Syrup of bitter orange peel | (℥j) | 30 | |

to be taken in dessertspoonful doses every three hours.

In addition, to be taken every hour, a teacupful, more or less, according to the age, of the following:

| | | *Grams.* |
|---|---|---|
| Fresh sorrel leaves | (℥v) | 150 |
| Boiling water | (℥xxx) | 1000 |

To be sweetened at time of giving.

Speedy amelioration of the symptoms is observed under this treatment, convalescence being established generally at the end of a week.

The author has also found benefit from its use in croup. The dried leaves may be used when the fresh are not procurable.

# Editorial.

THE CODE OF ETHICS OF THE MASSACHUSETTS STATE MEDICAL SOCIETY.—Until recently the Massachusetts State Medical Society had no formal code of ethics. Some of the more important practical items of the general code were incorporated into the by-laws of the society. During the last year, however, the propriety of adopting a more full and distinctly expressed code of ethical rules, has engaged much of the attention of its members. The discussion was ended at a recent meeting of the society by the adoption of a concise set of ethical rules, specially adapted to the organization of the society, and in several places referring to particular sections of its by-laws.

As the Massachusetts Medical Society is one of the oldest and most respectable medical society organizations in this country, we are glad she has formally adopted a code of ethics, thereby acknowledging the propriety and value of some clearly expressed written rules for the guidance of members of the profession in their relations to each other, and to their patients. It has been quite the custom of some occupying prominent positions in the profession, to sneer at the idea of a written code of ethics, claiming that it was derogatory to the dignity of an honorable profession to acknowledge anything beyond the *golden rule*.

Such, however, take a very narrow view of the subject, apparently seeing in the code, nothing but a system of penal rules. They do not seem to comprehend the fact that a written code is not only designed as a rule of conduct, but an exposition of the true relations of the members of the profession to each other, to their patients and to the community, by the reading of which many honest, plodding, well-meaning members, are enlightened

and their views of duty made more clear and elevated; many less scrupulous are restrained; and in cases of doubt and disagreement, all have a tangible, uniform standard for their guidance. Then we say again that we are pleased with the action of the Massachusets State Medical Society, more especially as the code it has adopted, so far as it goes, differs in no important particular from the provisions concerning the same topics, in the National Code, so generally adopted by the medical societies in this country. To satisfy the curiosity of our readers, we give below the Massachusetts Code as published in the Boston *Medical and Surgical Journal:*

(Adopted by the Councilors, February 4, 1880).

Object of a code of ethics. The Massachusetts Medical Society is designed to secure to the public a body of well educated and otherwise trusty physicians. Its code of ethics is intended to furnish certain principles and rules of action for their guidance and convenience.

I. The relation of the physician to medical science. A physician should lend his influence to encourage sound medical education, and to uphold in the community correct views of the powers and the limitations of medical science and art.

II. The relation of the physician to medical business. The professional success of a practitioner depends upon qualities connected with his moral character, his scientific attainments, and also his industry and business talent. But the relation of practitioners of medicine to families and households is not like that of tradesmen to their customers. The kind of competition which might be considered honorable in business, cannot exist between physicians without diminishing their usefulness and lowering the standard of the medical profession. (See IV, Sec. 1; V, Sec. 1).

III. The relation of the physician to his patients. The first duty of the practicing physician is to his patient, who has a right to expect that his disease shall be thoroughly investigated and skillfully treated, with charitable consideration for his mental peculiarities or infirmities, and in a relation strictly confidential.

1. The physician should not make unnecessary visits. He should neither permit needless apprehension nor fail to give seasonable notice of danger.

IV. The relation of the physician to other practitioners and to their patients. In his relations with another practitioner and his patients, a physician should be governed by strict rules of honor and courtesy. His conduct should be such as, if universally imitated, would insure the mutual confidence of all medical practitioners.

The foregoing rule should be a sufficient guide of action. Some of the following contingencies will illustrate its application:

1. A physician should take no step with a view directly or indirectly to divert to himself the patients or practice of another physician.

2. If formally requested to assume charge of a patient or family, usually attended by another physician, he should consent to do so only after notifying the latter, unless the case be one of pressing necessity.

3. If a physician is called to a patient during the temporary absence or illness of the usual physician, or in the case of accident or other emergency, he should direct that the former be sent for as soon as he is able to take charge of the case, and should then relinquish it to him. It is generally agreed that, among several physicians thus called, he who first arrives shall act, unless the family designate another.

4. A communication from the temporary to the usual physician, in the absence of the latter, should be written and sealed, and not simply verbal.

V. The relation of the physician to quackery. In every community there are minds naturally inclined to quackery, which has flourished in every age. It grows by being noticed, and thrives best under opposition. It is commonly unwise to employ argument against it. But a physician should lend his influence to establish a distinct line between the regular practice of medicine and the practice of quackery, and should avoid any act which might tend to weaken such a distinction either in the professional or in the public mind.

1. Thus, he should not consult with an irregular practitioner (*see By-Laws,*) nor countenance the use of secret remedies, nor be interested in medical trademark preparations; nor give certificates recommending mineral waters, patents, or medical prepara-

tions, or the like; nor give a commission to an apothecary, nor receive one from him; nor advertise himself or his practice in public print; nor publicly advertise advice or medicines to the poor, etc.

VI. Consultations should be encouraged in cases of unusual responsibility or doubt.

A consultation is called for the benefit of the patient, and to give him the advantage of collective skill. Should there be a difference of opinion, discussion should be temperate and always confidential.

A consulting physician should be careful to say or do nothing to impair the confidence of the patient or his family in the attending physician.

1. See, for guidance of a consultant, IV, Secs. 1, 2, 3, 4.

2. At a consultation punctuality is important; and non-arrival within fifteen minutes after the appointed time should be interpreted as non-attendance.

3. For the advantage of the patient and for economy of time, it is well in a consultation to observe a certian order of business. The following has been found convenient:

The attending physician, having stated in general terms the nature of the case, may then call, in turn, upon each consultant, if there be more than one, to examine the patient,—the usual order being that of seniority. No consultant should make an examination or inquiry out of turn. On retiring, the attending physician may invite, in the usual order, the opinion of each consultant, who should not be interrupted while giving it; after which he may add his own. In conclusion, a course of action may be agreed on, or the attending physician may be left to act at his own discretion.

VII. Fees. A fee-table has a local application, and is designed to indicate a fair or average amount due for services. But if the patient fully understands it beforehand, a physician is at liberty to place any value he sees fit upon his services. It is then at the patient's option to decline them or to pay the price. A physician should be considerate of the poor.

1. A patient in moderate circumstances should not be called upon to pay a fee unusually large for the service rendered, with-

out a previous explicit understanding. A physician, if able, should offer to pay the medical attendant of himself or of his family. Unless by special agreement, a physician attending or acting for another should receive the fees. Among obstetricians a rule obtains that the interval between the birth of the child and the placenta halves the service and the fee. A fee should be charged for a medical certificate or paper of value to the applicant, connected with, for example, absence or exemption, life insurance, pension papers, etc., except the usual certificates of vaccination and death.

VIII. Seniority. Seniority applies rather to duration of practice at the place in question than to age.

College Sociability.—One of the most pleasant social occations enjoyed by students during the present college year, was the union of the senior classes of the several departments or colleges of the Northwestern University, better known as the Chicago Medical College, the Union College of Law, and the College of Liberal Arts, at the residence of Dr. and Mrs. N. S. Davis, in Evanston, on the afternoon of the 13th March, last. After partaking of a bountiful lunch and enjoying an hour or two of free social intercourse, the company repaired to the University campus, examined the different buildings, including the Woman's College and the Theological school, and were received at the University Hall by President Marcy, aided by Professor Carhart, shown through the museum and into the library, where they tarried long enough to enjoy some impromptu sentiments and responses from representatives of the three classes. At the Woman's College the party enjoyed some excellent music, after which the law and medical classes returned to the city, highly pleased with their afternoon's entertainment.

Medical College Commencements.—We give in this number an account of the commencement exercises of the Rush Medical College. Those of the Medical Department of the Northwestern University, better known as the Chicago Medical College, do not occur until March 30th, and consequently will not be noticed until our next issue.

MRS. ASTOR'S PRESENT TO THE NEW YORK ACADEMY OF MEDICINE.—On the 15th of January last, Mrs. Augusta Astor presented to the New York Academy of Medicine, a costly and beautiful gift, in the form of a "loving cup." We are indebted to the kindness of the publishers of the N. Y. *Medical Record* for the annexed figure, which well represents the artistic finish of the original.

We have not reproduced this illustration without a purpose. When the wealthy and cultivated citizens of our great metropolitan centers are ready to exhibit their sense of what the medical organizations in those centers are actually accomplishing, when they learn to appreciate the character of their representative men and are prepared to give evidence of that appreciation in their generosity, that is a good day for the citizens of any metropolis. Medical men in America are by no means the "social Pariahs" which our English friends have lately been called by one of their

own number. They are in no sense, either beggars or paupers of the commonwealth. Industry, sobriety and even an ordinary degree of skill in the performance of their professional duties, are rewarded here with that comfortable and competent income which is far removed from the average of the immense majority of men.

The medical men of our land, and the medical institutions they have in charge, deserve well of the wealthy and cultivated classes. The incalculably large measure of charitable work performed by the profession in this country, probably represents a greater amount of unpaid labor than is to be found in any other field of human activities. The recognition of this, on the part of those who, whatever their wealth or social position, cannot fail to be indirectly benefited by it, is to us, a touching and grateful as well as graceful tribute. When some of the professorships in our medical colleges are properly endowed, and the scientific associations of medical men, are made the recipients of bequests intended to enlarge their powers of usefulness and their influence among all classes of society, then we shall have the solution of several problems which are now vexing the medical world.

We congratulate our brethren in New York, far more upon this evident recognition of their position as Academicians, than upon the gift they have received, costly and elegant though it be. And in reproducing the beauty of its exterior in these pages, we are not without the hope, that the time is near when some of the several medical associations of this city, shall in their own fire-proof place of meeting, be made the recipient of a gift, which, even though it be not a "loving-cup," shall help to unite their members in the sympathy begotten of an earnest effort in an honorable and common cause.

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IF any of our subscribers can, conveniently, send to the address of Dr. E. L. Holmes, 119 South Clark st., copies of the CHICAGO MEDICAL JOURNAL for November, 1866, and for August, 1867, they will confer a great favor.

# Notes and Extracts.

## INVESTIGATIONS CONCERNING THE QUALITY OF THE WATER SUPPLY AT MEMPHIS AND OTHER PLACES IN TENNESSEE AND MISSISSIPPI, UNDER THE DIRECTION OF THE NATIONAL BOARD OF HEALTH.

Having long been satisfied that our ability to prevent or limit the progress of epidemic as well as endemic diseases, will depend mostly upon the extent and accuracy of our knowledge concerning the local sanitary conditions existing where such diseases prevail, we were especially gratified to find that among the several important lines of inquiry, instituted by the National Board of Health, was one for examining the quality of the water supply in many of the places in the lower Mississippi Valley, in which yellow fever prevailed in the summers of 1878 and '79. The work has been prosecuted with considerable zeal, under the direction of Dr. Smart, whose report on the subject we give below, copied from "Supplement No. 3," of National Board of Health Bulletin.

While the investigation is by no means complete, and the report gives only sanitary results, instead of detailed analyses, it is quite sufficient to show that both the soil and the water supply of Memphis and many other places named in the report, are largely impregnated with organic matter highly pernicious to the public health. It is not at all difficult to understand why a population using such water, and breathing the emanations from a soil so impregnated, should be subject to severe epidemics in seasons of high temperature, and to a high ratio of mortality at all times. We say a high ratio of mortality at all times, because it is a great mistake to suppose that a soil impregnated with sewage

matter and water contaminated, exert an influence only on special epidemics. On the contrary, such circumstances occasion a greater aggregate amount of sickness and mortality by increasing the number and fatality of attacks of ordinary diseases than by special epidemics. For instance, in turning directly to the table showing the weekly mortality of different cities in the United States, that for the week ending February 28th, for instance, we find the number of deaths for each 1,000 of the population, to be, in Boston, 23.1; Providence, 21.4; New York, 25.7; Philadelphia, 17.0; Baltimore, 14.4; Cincinnati, 17.3; Chicago, 16.4; Louisville, 12.3; Memphis, 37.3.

The following is the report, which will not only repay for the time of perusal, but will be useful for reference hereafter:

REPORT OF DR. CHARLES SMART.

WASHINGTON, D. C., Dec. 30, 1879.

SIR: I have the honor to submit the following report of the practical results of my analysis of the water supplies of certain towns and villages in Mississippi and Tennessee.

My instructions did not require an exhaustive chemical analysis of the various waters with the quantitative determination of the saline matters which might be present in them. There was contemplated only what has been called a *sanitary analysis*, an investigation into the question of wholesomeness or unwholesomeness. But as a water which is unfit for potable uses from excess of metallic, earthy, or alkaline salts can usually be detected by its taste or hardness, a sanitary examination becomes practically an investigation into the organic matter which is contained in the sample.

The presence of organic substances can easily be detected in most waters, for there are few which are organically pure; but there is no royal road to the estimation of the quality, nor to—what is of as much importance—an appreciation of the quality. The examination must consist in instituting a series of experiments on the organic matter, on the substances which accompany it in the water, and on those derived from it. These various witnesses are, as it were, interrogated, and from a consideration of their testimony an opinion is formed as to the quantity of the

organic contamination, as to its origin in the animal or vegetable kingdom, as to its source, whether near or remote—in a word, as to the wholesomeness or unwholesomeness of the water which contains it.

The examination being of necessity complex, and each point susceptible of determination by different processes, all of which have their advocates, a consultation was held with Prof. Ira Remsen and Dr. Harmon K. Morse, of the Johns Hopkins University, concerning the ground to be covered by the examination in each instance and the best mode of accomplishing it, consistent with portability of apparatus and other considerations. I am especially indebted to these gentlemen for calling my attention to Tiemann's modification of Schulze's process for the estimation of nitrates, which they have used for some time in their water examinations, and the accuracy of which they have practically determined.

The experimental points decided upon as essential were—

*First.* The total solids as obtained by the balance after the evaporation of a given quantity of water;

*Second.* The separation of this total by ignition and the balance into substances dissipated by heat, such as organic matter, nitrates, etc., and the inorganic residue;

*Third.* An estimation of the amount of oxygen required to oxidize the oxidizable substances present in the water, as affording a view of the organic matter from one side; while a view of the same impurity was to be obtained on another aspect by—

*Fourth.* The break-up of the organic substances and estimation of their nitrogen in the form of albuminoid ammonia;

*Fifth.* The quantity of free ammonia present;

*Sixth.* That of nitrous acid;

*Seventh.* Of nitric acid;

*Eight.* Of chlorine; and,

*Lastly.* The microscopic appearance of the sediment.*

With these data and a knowledge of what might be termed the natural history of the water, whether rain, well, spring, river

* Statistics of morbility and mortality, as gathered by the house-to-house inspection, were so largely matters of memory and not of record that they are not thought worth presenting in this connection.

water, etc., and of its surroundings, it was conceived that an accurate opinion could be given as to its quality, not by the operator only, but by any one conversant with the processes of water analysis, no matter what the method he adopted in the formation of his opinion.

In accordance with instructions, I proceeded to the town of Jackson, Miss., which I found mainly supplied by rain-water collected and stored in underground cisterns. As the time at my disposal did not admit of the examination of a sufficient number of these waters to enable an opinion to be given in general terms upon the character of the supply, I approximated to a generalization by selecting—

*First.* Water supplying public institutions, such as State penitentiary, the deaf and dumb asylum, the institute for the blind, etc.

*Second.* Public or semi-public cisterns.

*Third.* A few samples from the cisterns of well-to-do citizens.

*Fourth.* A few from those of the colored people.

*Fifth.* Samples from houses in which there was or had recently been malarial remittent fevers.

Thirteen samples were furnished and analyzed, with the following results :

| | Cisterns. | Water good. | Water fair. | Water bad. | Sewerage |
|---|---|---|---|---|---|
| Sound | 2 | ..... | 1 | 1 | ..... |
| Spring | 3 | 1 | 1 | 1 | ..... |
| Leaky | 8 | 4 | 1 | 3 | ..... |
| Total | 13 | 5 | 3 | 5 | ..... |

This is manifestly a bad showing—only two sound cisterns out of thirteen, one containing water rank with vegetable impurity, while the contents of the other are not above suspicion. That the cisterns are not contaminated with sewage matter is owing to purity of soil, and not to their own merits. Several of them are neither more nor less than shallow wells, receiving more of their contents by percolation than by inflow from above.

One well-water, from northwest Jackson, was received for

examination. It was organically impure, even had its use not been contra-indicated by the amount of its earthy constituents.

Having been informed by Dr. Wirt Johnston, secretary of the State board of health, that during the 1878 epidemic of yellow fever the disease passed from Jackson eastward along the line of railroad and ravaged all the settlements along the track to Meridian, except the village of Brandon, I proceeded to that place and secured samples from the sources of supply most generally used. These consisted of three wells, two springs and one cistern. The last was sound, but contained bad water. The springs were good, but one (Youst's) would have been better had the arrangements for preserving it from surface admixture been other than of the most primitive character. Of the wells one furnished good, another fair or usable, and the third an impure water.

The next place at which my instructions called for an investigation was Grenada, Miss. Here the supply was found to be from wells averaging about twenty-five feet in depth. They were all free from excess of any earthy salts.

Eighteen samples were examined, of which fourteen were good waters, one fair and three bad. Of the last, one (Doak's) would probably have shown as a good water had a fair specimen been furnished for analysis. On investigating the well, after examination of the water, it was found that a new pump had been inserted on the day before the sample was collected, and that the well was unusually turbid from this interference. The two remaining on the record as bad waters were undoubtedly contaminated with sewage.

The comparative freedom of the wells in this town from sewage infiltration is owing to the absence of privy vaults. The Mississippi State Board requires the use of dry earth and surface receptacles, and Grenada has been very thorough in her adoption of this surface system.

For samples of the supply of small country settlements I proceeded from Grenada to Duckhill, Miss., where I examined three wells, the waters of which were good, although possessed at times of a sulphur taste on account of a blue-clay stratum which lies below the water-mark.

Returning from this place to Grenada, I collected at Elliott, Miss., samples from three wells, two of which were good and one bad.

At Payne's place, which is finely situated from a sanitary point of view, but which furnished twenty-five cases and thirteen deaths out of one hundred people living there during the 1878 epidemic, I obtained samples from two cisterns and one well. The latter furnished excellent water, but both cisterns, although sound, contained very impure supplies.

At Green's Chapel, the only well yielded a very satisfactory water.

If the above samples from country places can be admitted as illustrations of the well-water supply of such settlements generally, their freedom from organic impurity, from surface washings and sewage, is a matter for congratulation.

Grenada and its vicinity is thus seen to have an excellent water supply, the impurity in the few bad cases being due to local and preventable causes.

At Holly Springs, Miss., where examinations were next required to be instituted, twenty-five waters were analyzed, of which eighteen were from wells, five from underground cisterns, and two from springs.

The following tabulates the results:

| | Cisterns, etc. | Water good. | Water fair. | Water bad. | Sewage. |
|---|---|---|---|---|---|
| Sound | 3 | 3 | ..... | ..... | ..... |
| Siping | 1 | 1 | ..... | ..... | ..... |
| Leaky | 1 | ..... | ..... | 1 | ..... |
| Wells | 18 | 9 | 2 | 3 | 4 |
| Springs | 2 | 1 | ..... | 1 | ..... |
| Total | 25 | 14 | 2 | 5 | 4 |

Of the wells contaminated by sewage in this town, some are owing to pollution of soil by privy vaults now disused; one arises from the neighborhood of a vault which is yet in use, another from the immediate proximity of a cow-stable, combined with a break in the curb which admits of surface inflow in wet weather.

Some of the bad waters can have the organic matter contained in them accounted for only by the presence of large trees, the roots of which may lead surface water into the well with insufficient filtration, or, being in a state of decay, may charge the inflowing water with their detritus. In several of these cases the surface around the well and adjacent tree-trunks is garden ground freely manured with farm-yard refuse.

In passing from Mississippi, where privy vaults have been abolished in favor of the surface system, to Tennessee, where they continue in general use, the character of the well-water supply was found to undergo a marked change. Sewage pollution, which up to this time had been met with only in exceptional cases, was in Brownsville, Tennessee, discovered to be the general condition.

Eleven wells were examined, of which only two were good. Two furnished fair or usable water, one was bad from vegetable impurity, and six were found largely contaminated by sewage from vaults. Incidentally, it was noted by Dr. W. W. Taylor, secretary of the local board, that three cases of typhoid had occurred in a house (that of Judge Bond) supplied by one of these polluted wells.

Only two cisterns were examined, one of which was sound and contained a good water, while the other was leaky—a veritable shallow well—and contained a most impure supply.

In a thriving town like Brownsville, where the soil has become so contaminated as to infect the wells in this manner, it is high time for the establishment of a sewerage system. The vaults should be abolished in the mean time and the Mississippi surface system instituted. But this is beyond the limits of my inquiry, and is mentioned only in passing.

So far as the water supply is concerned, it is is imperative that some action be taken by the local board. The town is ripe for decimation by typhoid fever and other diseases which originate in impurity of soil and are propagated by impure water. The proper remedy is the organization of a water company and the introduction of a supply from a suitable source entirely beyond the risk of pollution by the consumers. But if this requires an expenditure exceeding the means of the town, recourse must be had in the mean time to a rain-water supply, or, in certain locali-

ties outside of the denser areas, to deep wells lined with brick to exclude infiltration from the surface.

The city of Memphis, Tennessee, was found to depend for its supply upon three unequal sources, which, in the order of their importance, were—

*First.* The underground cisterns, of which it was estimated that there were no less than four thousand in use within the city limits.

*Second.* The wells, of which there were quite a number, but many of them were not used on account of a bad repute, based principally on the hardness of the water, or the taste of its organic salts.

*Third.* The hydrant water, or that furnished from the Wolf river by the Memphis Water Company.

Eighty samples of cistern water, from various parts of the city, were examined, with the following result:

| | Cisterns. | Water good. | Water fair. | Water bad. | Sewage. |
|---|---|---|---|---|---|
| Sound | 36 | 25 | 8 | 3 | ..... |
| Siping | 12 | 2 | 1 | 2 | 7 |
| Leaky | 32 | 6 | 2 | ..... | 23 |
| Total | 80 | 33 | 11 | 5 | 31 |

But these cannot be viewed as illustrating the condition of the four thousand cisterns in the city, inasmuch as, although they came from all quarters, they were in every instance selected samples. Many were brought for examination by citizens whose very anxiety concerning their water supply might be looked upon as an argument in favor of the probability of the cistern being sound and the water pure. Other samples, as those from the public schools, were sent in mainly for the purpose of verifying their purity. On the other hand, samples brought by the medical inspectors for analysis were presented on account of their probable impurity, while the last nine of the waters which were examined were selected by the analyst from a list of those known by preliminary examination to be impure.

But while one may not generalize concerning the Memphis

cisterns from this table, it shows conclusively that the impurity of the soil is such that when a leak exists in the cistern, the probabilities are strongly in favor of a pollution by sewage of the contained water.

As the complete sanitary analysis of a water occupied so much time, and as the number of cisterns was relatively so immense, a ready method was sought by which the condition of a cistern and the probable quality of its contents might be determined.

At first sight, the amount of total solids in a stored rain-water would seem to afford the means of judging as to the soundness of its cistern, any sipage or leakage of necessity carrying into the water earthy and other salts which would increase the total. But several instances occurred in the above analyses where lime carbonate in the residue came manifestly from the cement lining of a sound cistern. This method had therefore to be excluded as fallacious.

No objection, however, attached to an estimation of the chlorine present in the water as an index of the condition of the cistern. Rain-water contains a small proportion of chlorine, the amount varying with the condition of the atmosphere and the purity of the shedding surface. In the inland city of Memphis the amount naturally existing in its rainfall is not large. Rain which was shed from the roof of the Peabody Hotel, during a heavy fall on December 3, contained .075 parts of chlorine in the 100. A cistern water which does not contain more than this must be undeniably free from soil pollution, for the finished analysis showed the soil to be so charged with chlorides that the slightest siping or leakage was marked by an increased chlorine figure. A small excess over the normal might exist and the cistern be sound, the increase being due to an unusual foulness of the roof. As much as .15 parts of chlorine was shown to be consistent with soundness, but as the amount increased beyond this figure the probability of leakage became proportionally great. A series of chlorine determinations was then made on cistern samples collected from all the wards in the city; and, as no selection was exercised, the results may be viewed as expressing the condition of the Memphis cistern supply.

In tabulating them, those waters which contained less than

.075 parts of chlorine are set down as from *undoubtedly sound* cisterns, the supply itself being in all probability of good quality. In cases where the amount lay between .075 and .15 parts the cisterns are recorded as *probably sound*, the increase being due to vegetable contamination and foulness of the shedding surfaces, although in a small proportion of the cases it might be owing to a slight siping from the soil. Here the water must be considered of doubtful quality. In those instances where the chlorine figure lay between .15 and .30 parts, the cistern is reported as probably *siping*, the increase coming from the soil, and being in all likelihood a sewage accompaniment, although in rare cases it might arise from a large organic impurity without leakage on the part of the cistern. In either case the water is probably bad. Lastly, where the amount exceeded .30 parts in the 100 of water, the cistern is viewed as undoubtedly *leaky*, and as containing an impure water supply.

CISTERNS EXAMINED.

| | |
|---|---|
| Undoubtedly sound | 127 |
| Probably sound | 82 |
| Probably siping | 82 |
| Undoubtedly leaky | 158 |
| Total | 449 |

In estimating the condition of the Memphis water supply from this source, there should be added to the above figures nine leaky cisterns, making 167 in a total of 458. These nine samples were brought in for the chlorine experiment along with the others, but a complete sanitary analysis having been subsequently made to determine the characters of their impurity, they were removed from the list of cisterns examined to that of cistern-waters analyzed.

The large proportion of leaky cisterns, with the strong probability of sewage contamination in each instance, requires that some action be taken to insure a better water supply for the city. But whatever may ultimately be done in this direction, the citizens will have to depend upon their cisterns for some time to come. Yet the character of many of these waters is such as to call, in the interest of the public health, for an immediate interference. In several instances I was enabled, by personal com-

munication with the owners, to warn and advise. But in other cases, where the water was brought by the inspecting officers, I did not have the means of notifying the consumers. To overcome this difficulty and enable action to be taken in the cases of certain cisterns, which from their excessive leakage appeared to require immediate attention, I sent a communication embracing some of the facts here recorded to Dr. R. W. Mitchell, member of the National Board of Health, and of the committee on the sanitary survey of Memphis, with a list of sixty-five of the worst cisterns and a map giving the location and character of the whole number examined.

But the facts developed by the analysis constitute only a small part of the total array which demands investigation in the sanitary interests of the city. Among the thirty-five hundred unexamined cisterns there at least twelve hundred which leak. These should be singled out by the local authorities by means of the chlorine test, and their abandonment should be ordered if there is manifest danger from soil pollution in their surroundings; but if there is no such danger it would be sufficient to direct them to be cleaned out and re-lined with a thick coating of Portland cement.

The analyses of the well-waters demonstrated the impurity of the city's soil in as marked a manner as did those of the leaking cisterns. Of nineteen wells, all of which were reported as brick-lined to exclude infiltration, fourteen contained sewage matter, either in the recent state or oxidized by its passage through the soil. Of the five remaining, the use of one was contra-indicated by an excess of earthy salts, so that there were in reality only four waters, out of this list of nineteen, which could be warranted as fit for use. Of those which showed the presence of organic mat- in an oxidized condition, one—Pontotoc—was so free from recent contamination, and at the same time contained such a small proportion of oxidized matter, that the *water* might be considered as wholesome. The *well*, however, must be looked upon as dangerous, inasmuch as an increased flow of water into it might at any time bring unaltered sewage to pollute the supply.

The waters might be thus classified:

Four good in every respect.

One doubtful, as liable at any time to contamination.

Eight bad in every respect.

Four potable so far as recent organic matter is concerned, but condemned on account of oxidized organic matter and excess of inorganic salts.

One unwholesome solely on account of dissolved inorganic salts.

One potable so far as inorganic constituents are concerned, but condemned on account of organic pollution.

In connection with the cistern and well-water supply of Memphis I have especially to thank Dr. R. W. Mitchell, member of the National Board of Health, and Dr. Frank W. Reilly, superintendent of the house-to-house inspection, for the assistance they furnished, in securing the necessary samples for analysis, and for many valuable suggestions connected with my work.

Besides the cisterns and wells above enumerated, the examinations at Memphis included one water from a tank or reservoir built above ground, one rain-water collected direct from a roof, in order to place on the record the sanitary analysis of the rainfall which was then filling the cisterns, and thirteen samples of river water, one from Elmwood Creek, three from the Mississippi, and nine from the Wolf river.

The supply furnished by the Memphis Water Company is drawn from Wolf river, a short distance above its mouth. It is pumped from the river and distributed without any intermediate process of purification.

During the period of my stay in Memphis, Wolf River was an uninviting stream, turbid with particles of red clay, which, on account of their extreme minuteness, rendered filtration difficult from the tendency of the particles to clog the filter—and sedimentation practically impossible. Entangled with the clay there was much vegetable matter, which could be separated only by the separation of the mineral particles. Hence, analyses of the water made on samples taken on November 12th and 18th and December 2nd and 15th showed it to be unwholesome in a high degree. Many householders who were doubtful as to the condition of their cisterns made use of this water after passing it through a charcoal filter. One such filtered sample was examined and found to be a specimen of very pure water. Those citizens only who made

use of the filtered water had an interest in this result, which is to be set to the credit of the charcoal, not to that of the water. Sedimentation was accomplished on the small scale in a few instances by filling cisterns with the river water at a time when the stream was low and comparatively clear. Three samples of water stored in this manner were examined and found to be of good quality. But the long-continued sedimentation in a clean cistern which is to be credited with this result is a process which, like the charcoal filtration, can be accomplished only in individual cases.

It is, no doubt, true that at other seasons of the year this stream is less impure than at present, but a water, to be suitable for the supply of a large city, should be pure at all seasons, or, if not, it should at least be susceptible of purification on the large scale. The Wolf River water, unfortunately, cannot be thus purified. Any filter which might be constructed would be clogged within a few hours, and a series of reservoirs, to permit of subsidence, would require to be of extravagant size unless some means were devised to hasten the process.

With the view of ascertaining the character of the water higher up the stream than the location of the water-works, a sample was procured on November 18th from Raleigh, a point nine miles distant from the city. This specimen was found to be somewhat less impure than that collected on the same day near the water company's inflow. But it was unwholesome, from an excess of vegetable matter, and as objectionable as the other when viewed as a possible source of supply. It was loaded with the same red clay which renders the hydrant-water so difficult of purification.

In order to effect a comparison between the waters of the Mississippi and Wolf Rivers, Capt. W. H. H. Benyaurd, Corps of Engineers, United States Army, who furnished the samples already mentioned, collected specimens of the Mississippi on November 18th and December 2nd and 15th. But these were insufficient for the purpose. The periods of flood in the two streams are not coincident. On the first of the above dates Wolf River was somewhat swollen, while the rise in the Mississippi had not commenced. The Mississippi water was then a fair sample of river water, containing a certain amount of vegetable impurity, but by no means

so much as has been recorded as existing in some Western streams of good repute as to wholesomeness. On the second date the Mississippi sample, although very turbid, the river being 7½ feet above low water mark, and rising—was comparatively free from organic matter. On the third occasion, the river had risen to 10 feet and was exceedingly turbid. When the Mississippi is at this height, its waters impede the outflow from Wolf River, causing stagnation and flooding in the mouth of the latter. The sample presented the same amount of organic impurity as that furnished by the Wolf River water collected on the same day, enough to condemn it as unfit for potable use.

To establish a comparison between the streams, the annual lines of organic impurity should be determined. But continued observations of this nature do not appear to be called for to decide the question as to which is the better water for a town supply. Both are pure when at low-water mark, and free from impurity. Both are impure when swollen and turbid. So far they agree. But the red clay of the smaller stream rises into turbidity more readily and falls more slowly than the more siliceous sedimentary matters of the Mississippi. This would suggest that the annual period of turbidity and consequent impurity is less in the Mississippi. But the possibility of purifying a supply drawn from it should cause it to be preferred, even if its period of turbidity were greater than that of Wolf River. So far as dissolved inorganic substances are concerned, both waters are of good quality.

This report has, of course, no consideration for the engineering and financial sides of the question.

I have the honor to accompany this report with an itemized list of the various well, spring, river and cistern waters analyzed, and of the Memphis cisterns tested chemically for leakage. I also append a copy of the letter referred to above as having been sent to Dr. R. W. Mitchell with the view of reaching the local authorities of Memphis.

I have the honor to be, very respectfully, your obedient servant,

CHARLES SMART,

*Captain and Assistant Surgeon, U. S. A.*

# Selections.

## HOSPITAL PRACTICE.

*Hereford General Infirmary.—Case of Hip Disease, with sudden Death from Cardiac Embolism.* (*Under the Care of Mr. Turner.*)

For the notes of this interesting case we are indebted to Mr. Charles J. Devis, house-surgeon.

Charles H——, aged fourteen, a farmer's boy, was admitted on Nov. 21st, 1878. His illness began eight months before, when he complained of an aching pain in the right hip. He continued to work, but always with lameness. He grew worse during the two months prior to admission, and was obliged finally to leave off work. On admission he presented the symptoms and signs of synovitis of the right hip-joint—viz., flattening of the buttock, loss of the gluteal fold, flexion of the joint, and great pain on movement of the limb. There were no rigors, and no great variation of the daily temperature. The limb was extended, and Liston's long splint was applied. Iron and cod-liver oil were given internally.

On January 13th there was much tenderness and pain in the region of the hip-joint, aggravated at night, with starting of the limb when going to sleep. There was no fullness in the front of the thigh where the tenderness was greatest.

On Feb. 21st the apparatus was removed. There was much fullness over hip-joint in front of thigh, the fold of the groin being lost. There was no pain on pressing trochanters, and very little on raising the limb. The limb was very stiff at both knee and hip, and there was great œdema of whole limb. The limb was raised on a pillow and enveloped in a flannel bandage. On March

1st he was better, there being very little pain on either pressure or movement. Ordered to sit up a short time each day. On the 3rd he was obliged to return to bed on account of increase of pain and œdema of limb, which latter much resembled that of phlegmasia dolens. Extension was re-applied. On the 5th fluctuation was detected below the great trochanter over an area about two inches by one inch in extent.

On April 12th the pain was less; fluctuation not increased; œdema as great as before. Feet of bed raised on blocks, and the limb well raised on pillows.

On May 15th the œdema of limb was much less, but still persisting; the tissues were brawny and hard; there was no tenderness in the region of the femoral vein or lymphatics; the knee, to which passive motion had been applied, was a little more flexible. An aspirator needle was introduced into the abscess, the contents of which were found to be inspissated pus too thick to pass through the needle.

On June 6th complete anæsthesia was produced by ether given in Clover's inhaler, six drachms being the total quantity used. The knee was fully flexed and the hip partially so, the adhesions readily breaking down. No unusual symptom occurred during the day. Vomiting began half an hour after the operation, and continued until evening (about five hours). The patient slept well and ate his breakfast heartily at 7 o'clock on the following morning. At 8:35 a.m. he told the nurse that he had a pain in his left side, to which she replied that she would give him a fomentation until she could fetch the house-surgeon. Whilst preparing the fomentation the nurse looked up and saw the lad looking very ill, but without any breathlessness, and at once summoned the house-surgeon, who arrived at the bedside within five minutes of the first complaint of pain, only to find him at the last gasp.

*Necropsy, forty-eight hours after death.*—Hypostatic congestion and rigor mortis well marked; body well nourished; right hip almost completely anchylosed, only admitting of slight flexion; much solid œdema of right lower limb. Thorax: trunk distended with blood; pericardium fully occupied by heart; right auricle much distended, ventricle to a less degree. Lungs pale,

with slight hypostatic congestion. On cutting through the pulmonary artery, it was seen to contain a colorless fibrinous clot of some consistence. Heart: Right auricle full of blood-clot, which extended through the right ventricle into the pulmonary artery to its secondary divisions; centre of clot yellow, firm, and strongly adherent to the auricular appendix; the majority of the clot softer and more friable, partly colorless and partly colored. Left heart empty; ventricle firmly contracted. Abdominal organs healthy, with the exception of a great amount of congestion, most marked in the kidneys. The disease of the hip was found confined to the articulation, the surfaces of the femur and acetabulum both being bare and rough; a large abscess directly communicating with the joint was found deeply situated among the adductor muscles. On examination of the femoral vein, this vessel was found converted into a tough fibrous cord, quite impermeable for an inch and a half in extent, the part of the vein involved being in the apex of Scarpa's triangle. On laying open the vein a firm tough clot closely united to the inner coat of the vessel was found extending upwards for half an inch, and surrounding this was some soft recent clot, which readily broke off. The remainder of the vessel, as well as the external and common iliac, was healthy and permeable.

*Remarks.*—The question that naturally arises in this case is, how much of the fatal termination was due to the disturbance of the blood-clot in the femoral vein by the manipulation given to the limb? And, depending on that, what was the sequence of events that took place in the vascular system? It would appear that on the flexion of the knee and hip-joints a portion of clot was broken off and carried into the circulation. The lodgment of this embolus in the auricular appendix gave rise to little or no disturbance, but on this was built an immense thrombus, almost filling the auricle, and extending through the ventricle into the pulmonary artery for some distance. Under these circumstances, if such they be, how is such a sudden death to be explained? Not by an extra exertion on the part of the patient, for he was at the time lying quiet in bed, and had not felt any inconvenience when having his breakfast, although occasionally reaching over to his locker.

*Ashton-Under-Lyne District Infirmary.—Compound Fracture of Right Superior and Inferior Maxillæ, with Compound Depressed Fracture of Skull and Hernia Cerebri; Recovery.* (*Under the Care of Mr. Hopwood.*)

For the notes of this case we are indebted to Mr. S. J. Rennie, the house-surgeon.

W. McC——, aged twenty-eight, bricksetter, was admitted July 30th, 1879, for injuries. He was engaged in removing the center support of the arch of a brick-kiln, and before he could get out of the way the arch fell, and the patient and another man were buried in the ruins. The arch was about nine feet high from the center to the ground.

On admission the patient had a large ragged wound across the right side of his face, from his nose, one nostril of which was torn open, to his ear, passing beneath the margin of the orbit. There was found to be a compound comminuted fracture of the right superior maxilla, which had evidently been caused by a large stone smashing his face. The line of fracture ran through between the central incisors, and the antrum was opened into. The fracture then ran beneath the orbit to the malar bone, which was comminuted, and the zygomatic arch broken. The coronoid process of the lower jaw was broken off, and there was a depressed fracture of the temporal bone just above the zygoma, from which the brain protruded to about the size of a strawberry.

The coronoid process of the lower jaw, and the broken zygoma were removed, the protruding brain matter was shaved off, and the temporal bone, which was slightly driven in, was easily elevated with the tip of the finger. The wound was then washed out with carbolic lotion, several splinters of bone removed, and the parts brought together by sutures, a drainage-tube being introduced. Carbolic lotion as a dressing was applied, a wedge placed between the teeth to elevate the upper jaw, and the whole secured by a four-tailed bandage. Temperature 99° Fahr; pulse 62, full, strong, regular. Ordered six grains of calomel with six of compound ipecacuanha powder. Head to be shaved, and ice-bag applied.

The patient was perfectly sensible when brought in, and thought he was only slightly hurt. There was no shock, nor had

there been any. The pupils were perfectly regular, there was no paralysis of the facial muscles, and the patient expressed himself better as soon as his injuries had been attended to.

Next morning the temperature 98.6°; pulse 62. He felt better. There was some redness about the margin of the wound. Bowels not opened. The calomel and ipecacuanha were repeated; and one-tenth of a grain of tartarized antimony was given every four hours in an effervescing saline mixture; ice to suck; milk and beef-tea. Mouth and nose to be washed out twice daily with Condy's fluid. Evening temperature 99.2°; pulse 64. The bowels were opened once freely. Had one-fourth of a grain of morphia hypodermically.

August 1st.—Morning: Temperature 98.4°; pulse 66. Slept well. Wound looking well. Bowels not opened. Ordered saline aperient mixture. Evening: Temperature 98.2°; pulse 63. Taken milk and beef-tea well. Bowels opened once freely since aperient. Pulse rather irregular and bounding. A quarter of a grain of morphia injected hypodermically.

2nd.—Still feels better. Some redness about neck, but wound looked well. One or two sutures removed. Bowels not opened. Calomel and saline aperient repeated.

3rd.—Morning: Temperature 98.6°; pulse 70, full and compressible. Still improving. Redness about wound less. Wound syringed with Condy's fluid. Bowels opened twice during night. Slept well.

4th.—Better. Wound looking healthy; several sutures removed; dressed as before. Takes milk and beef-tea freely. Tongue clean. Temperature 98.5°; pulse 75. Ordered the calomel and white mixture as before.

6th.—Slept fairly; feels better. Several enlarged glands had made their appearance in his left arm, evidently caused by the irritation of the hypodermic injection; these were painted with iodine.

On the 8th the enlarged glands had disappeared; drainage-tube removed. Wound, from nose half-way, healed, other half granulating, having been kept open by drainage-tube. Tongue clean; bowels regular. Temperature 98.2°; pulse 68. On the 9th he said he felt as well as ever he did in his life. On the 10th the

wound was brought together by strapping. Allowed meat, shredded fine, and oatmeal poridge with milk.

14th. Temperature 97.6°; pulse 76. Still progressing favorably; wound three-quarters healed, rest granulating rapidly.

On the 23rd he was allowed to get out of bed. On the 27th the wound was entirely healed. On Sept. 1st he was convalescent. He had some stiffness on trying to move his lower jaw, and there was some tenderness still during mastication. There is a slight sinking in along the line of fracture, but very little deformity, considering the frightful nature of his injuries.

On Oct. 14th he was seen. He was quite well and working regularly; there was very little disfigurement.

*Remarks.*—The interesting features of this case are, the enormous amount of injury sustained, with absolutely no symptoms of any moment; and also that it is an illustration of the fact that comparatively large portions of the convolutions of the cerebrum may be removed without any bad results. It shows the value of the careful removal of all, even the minutest, splinters in cases where is a compound comminuted fracture of a thin bone like the wall of the antrum, and the use of frequent syringing of the wound, to remove, as soon as formed, any discharge which might become a source of irritation.

*Aberdeen Royal Infirmary.—Case of Naso-Pharyngeal Polypi; Ecrasement and Osteo-Plastic Operation; Rapid Recovery.* (*Under the care of Dr. J. C. Ogilvie Will.*)

J. B——, aged seventeen, a fisherman, was admitted on May 4th, 1878, suffering from nasal polypus. The patient stated that about two years and a half ago he fell among rocks, receiving a severe blow upon his nose which caused great hæmorrhage, and was followed by considerable swelling. Six months afterwards he began to experience difficulty in breathing, and suffered from other symptoms of nasal occlusion. The symptoms increasing, and frequent attacks of bleeding supervening, he consulted a medical man, who injected astringent solutions, and extracted a small polypus. Sometime afterwards he was advised to seek admission to the infirmary, and when he did so the following symptoms were noted—namely, nose much deformed, flattened,

and broadened, presenting the appearance of frog-face; right nostril completely blocked up by a tumor which was visible through the anterior nares; the soft palate was depressed and much displaced forward by a hard, firm swelling; deglutition difficult; speech indistinct; breathing during sleep labored and stertorous; sense of smell impaired.

Attempts to determine the points of attachment of the polypi were attended with great difficulty, on account of the lad's nervousness, and after the endeavor which was made to obtain the required information, he made preparations for returning home, and was only prevented from fulfilling his intention by the promise that he should be subjected to no further examination, so that the only information which it was possible to obtain was that the tumor seen through the anterior nares was attached to the floor of the nasal fossa, and the probability of the polypus being a branched one, consisting of two portions springing from a single stem, one passing forward and the other backward, seemed to both Dr. Will and his colleagues to be the most probable state of the parts.

On May 7th the wire rope of an écraseur was passed through the anterior nares into the pharynx, and appeared in the throat, *not* between the tumor and the posterior wall of the pharynx, as it was concluded that it would do from the view that had been taken of the point of attachment of the polypus, but in front of the tumor, or between it and the velum, which indicated that there was opposition to the passage of the wire loop behind, and that the pharyngeal portion of the morbid growth sprang from the base of the skull, and not from the floor of the nasal fossa. This was verified by the next step of the procedure, which consisted in passing the loop attached to the écraseur over the tumor, and then making slight traction on the handle of the instrument, when it was evident that the neck of the tumor was encircled by the wire. The wire was then gradually tightened in the ordinary manner, and in the course of a few moments a polypus the size of a large walnut was removed from the mouth, and the écraseur was then withdrawn. It was now evident that the polypus, which had projected behind and had been removed, was perfectly distinct and separate from the tumour seen through

the anterior nares, for it was still *in situ*. Dr. Will therefore now passed his forefinger into the nostril, and found that it was filled with a large hard tumor, having the attachment to the floor, which he had previously ascertained. He made an endeavor to enucleate it by means of his finger-nail, but the area of attachment was so broad, and the adhesions were so firm, that his efforts were fruitless.

A consultation with Drs. Ogston and Garden was then held, when it was determined to cut through and turn aside the right superior maxillary bone along with the overlying soft parts, in order to gain access to the point of origin of the growth. The bone and soft parts were accordingly detached after the manner of Langenbeck, and free access being thus afforded to the point of attachment of the mass, it was readily extirpated by avulsion and the free use of curved scissors. The bone was then replaced and the soft parts were united by sutures. Hæmorrhage, which was excessive during the operation, was restrained by the application of catgut ligatures to the vessels as they were cut, and by the insertion of a plug of lint into the nostril; no dressings were applied. The polypus thus removed was irregular in shape, somewhat flattened, and about the size of a small tomato. Professor Stirling examined it, and reported that its structure was that of an ordinary œdematous fibrous tumour, with retentive cysts due to obstructed mucous glands. At 4 p. m. the patient was sensible, but exhausted; pulse extremely feeble. No chloroform sickness. Ordered a teaspoonful of brandy every two hours, and ice to suck. 8 p. m.: Had slept a little; did not complain of pain. Pulse stronger, 132; temperature 100.3°. To have an injection of morphia if required.

May 10th.—9 a. m.: Had passed a quiet night without hypodermic injection. No complaint of pain, but stated to nurse that he was already much relieved by the operation, as breathing was so much easier, although the plugs of lint were still in the nostril. Pulse 116; temperature 100°.

11th.—Morning: Passed a somewhat restless night. Parts swollen, and right eye completely closed from œdema. Pulse 113; temperature 101°. Evening: Swelling much lessened.

Union of cut parts complete; all the sutures removed. Pulse 108; temperature 101.1°.

From this date everything went well, the swelling steadily disappearing, the pulse improving in strength and decreasing in frequency, the temperature, which never reached a higher point than 101.2°, speedily becoming normal, and the patient's general condition undergoing so rapid an improvement that on May 18th he was allowed to leave bed, and on the 23rd he was able to go out of doors. For some weeks there was a free discharge of pus from the nostril, which was frequently washed out with an antiseptic solution. One small point in the upper line of incision gave way, and remained open for a considerable period after his return home, but, on the extrusion of a small plate of bone, it speedily healed. On June 8th the lad had left hospital in the enjoyment of perfect health, the wound, with the exception of the small point above mentioned, being soundly healed, while the maxillary bone was firm and immovable.

Six months afterwards, when he presented himself at the hospital, he stated that he could breathe with equal ease through either nostril, and careful examination of the parts previously affected by disease failed to reveal the presence of any morbid appearances, while his face, although disfigured by linear cicatrices, was a not unpleasant looking one, and bore but comparatively slight evidences of the very severe procedure which had been put in force.

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DOUBLE MONSTERS. Description of the Specimens in the Museum of the Brooklyn Anatomical and Surgical Society, with Remarks. By LEWIS S. PILCHER, M.D., Demonstrator of Anatomy to the Society; adjunct Professor of Anatomy in the Long Island Hospital Medical College.

The classification adopted in the present paper is that of Fisher. See Articles on Diploteratology, Transactions of the New York State Medical Society, 1865–66–67 and 68.

This classification is itself based upon the one elaborated by Förster (*Die Missbildungen des Menschen*), whose divisions have

been improved and made to follow a more natural order by Fisher.

Double monsters include only beings in which traces of duplicity in the cerebro-spinal axis exist. The method of their development is thus stated by Fisher: "They are invariably the product of a single ovum, with a single vitellus and vitelline membrane, upon which a double cicatricula or two primitive traces are developed. The several forms of double malformation, the degree of duplicity, the character and extent of the fusion, all result from the proximity and relative positions of the neural axes of two more or less complete primitive traces developed on the vitelline membrane of a single ovum."

The clue is thus given to a method of natural classification; the two primitive traces may fuse at their caudal extremity and diverge in varying degrees as they ascend; the result is a double being separated above and joined below, the cleft of the cerebro-spinal axes being from above downward; hence Order I. *Terata katadidyma*, monsters with downward cleavage.

If the fusion is at the cephalic extremity with divergence of the caudal extremities, a double being is produced single above and double below; Order II. *Terata anadidyma*, monsters with upward cleavage.

If the two primitive traces approach at points in their continuity only, while the two extremities diverge, a double being results, double both above and below, with union between; Order III. *Tarata anakatadidyma*, monsters with both upward and downward cleavage.

The differing degrees of duplicity found under each of these orders constitute minor divisions—genera and species—for the nomenclature of which concisely descriptive terms are adopted; the result of this is, that in this classification the name by which any specimen is characterized embodies a fair description of them. I think it merits adoption in preference to any heretofore suggested.

SPECIMEN I. *Order*, Terata katadidyma; *Genus*, diocephalus; *Species*, dibrachius, dipus; *Variety*, diauchenos.

History; mother multiparous; utero-gestation was unattended with anything noteworthy; earlier stages of labor were pro-

longed; a head was finally delivered by forceps, after which no progress was made for some hours. Dr. Andrew Otterson, having then been called, attempted to introduce his hand into the uterus for exploration; partial version of the retained parts resulted from this attempt, so that the breech engaged; efficient contractions followed, producing expulsion of the breech and body, followed lastly by the second head. The child was dead when delivered. The mother recovered without drawback. Specimen presented by Dr. Andrew Otterson.

FIG. 1.—DICEPHALUS DIBRACHIUS. DR. A. OTTERSON'S CASE.

Description.—External Configuration. A fully developed male child. It has two distinct and perfect heads and necks; one trunk; two upper and two lower extremities.

Its extreme length is 48 centimeters (19 inches.)

The girth of the chest, over nipples, is 39 centimeters (15½ inches.)

The two heads differ slightly in their size; the circumference of the left head is 36 centimeters (14¼ inches), that of the right head is 33 centimeters (13⅛ inches).

There is no anal orifice.

The genitals are male, single and perfect.

Skeleton. The vertebral columns are distinct and perfect throughout; they approach each other gradually from above downward as far as to the lumbar region, whence they run parallel to each other, being separated by a small interval; the sacra, each distinct and perfect, articulate with each other by means of an interarticular fibro-cartilage which unites the contiguous auricular surfaces of the two bones.

From each sacrum springs the innominate bone which forms the wall of the pelvis upon that side; at the symphysis pubis the two unite as usual.

The corresponding dorsal vertebræ of the two columns are united by a series of bony arches formed by coalesced ribs; each arch or compound rib has two normal heads, one at either extremity, by which it articulates with its proper vertebra. The length of these arches decreases from above downwards, the longest being 38 millimeters (1½ inches) long.

The ribs, which spring from the free sides of the two vertebral columns, are connected to a common single sternum in front by unusually long costal cartilages, and thus complete the thorax.

The clavicle and scapula of either side are normally related to the sternum and ribs.

Resting upon the posterior face of the upper compound ribs, in the middle of the back between the two series of dorsal spines, is a compound scapula formed by the fusion of two bones along their anterior edges; an acromion process, club-shaped, projects forward from the middle of the upper edge of this compound scapula; articulating with this process, and passing directly forward to articulate with the sternum at its upper border, the episternal notch affording an articulating surface, is a slender compound clavicle.

Respiratory system. Two sets of respiratory organs are present, each independent and perfect. There are four pleural sacs. By the blending of the pleural layers which lie in contact in the middle line, a fibro-serous septum is formed which divides the thorax into two cavities posteriorly; these middle pleural sacs and their contents are hidden from view anteriorly by a large pericardial sac, with the posterior wall of which the anterior margin of the septum described becomes blended.

Circulatory System. The pericardium lies in the middle line, directly behind the sternum, and extends to some distance on each side of it. The sac is single, and incloses a compound heart (Fig. 2), the ventricular portions of which remain separate, while the auricles are blended together. Constituting the left mass of this heart are two ventricles and one auricle, the left, which are of normal size, shape and relative position. The origins and relations of the aorta and pulmonary artery upon this side are normal. Into the auricle enter four pulmonary veins. The elements of the right mass are more changed: there is but one ventricle, which however is larger than either of the ventricles of the other mass; from the right side of its base springs a second aorta; there is no pulmonary artery on this side. There is no apparent attempt at differentiation of the auricles; there is simply a single capacious auricle (d), which is blended with the right auricle from the left mass, forming a huge venous reservoir. At the right posterior side of this reservoir enter two small pulmonary veins from the right pair of lungs.

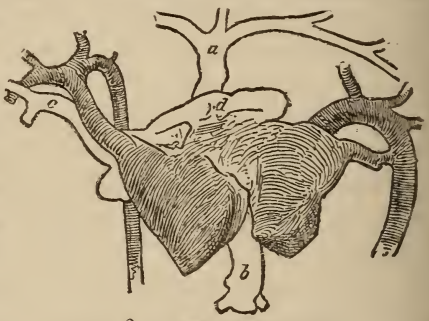


FIG. 2.—COMPOUND HEART.

a. Descending Vena Cava; b. Ascending Vena Cava; c. Right Innominate Vein; d. Compound Auricle.

A single ascending vena cava (b) gathers the blood from the lower portion of the body; above, the left innominate vein of the left child crosses traversely its neck to the point of junction of the two necks, receiving the right internal jugular in its course; here it is joined by the left internal jugular of the right neck,

and by a large anomalous vein from behind; the large descending vena cava (a) thus formed descends in a straight course to the middle of the compound auricle. The right innominate vein (c), formed by the right internal jugular and right subclavian veins of the right neck, empties into the compound auricle at its right side.

The two aortas descend each upon the left side of their proper vertebral columns; they do not unite below, nor bifurcate, but each diverging continues as a common iliac, and after giving off the umbilical artery, passes on to be distributed to a lower limb.

Digestive System. There are two stomachs. The left is of normal shape and size, and occupies its usual place in the abdomen. To its cardiac end is attached a normal spleen, the only one present. The right stomach is smaller, pyriform in shape, hidden behind the liver, lies very obliquely, with its pylorus pointing toward the pylorus of the other. Its duodenum joins at once the left duodenum, and the two bowels appear fused together for one sixth of their entire length; a well-marked longitudinal groove so marks the fused bowel that the appearance of a double-barreled gun is produced; transverse section shows that they are divided by a membranous septum into two distinct canals, which communicate freely with each other by frequent openings in the septum; the bowel then divides into two distinct tubes, each with his own mesentery; this persists through a length equal to one third of the whole; then they again fuse, and the double-barrel arrangement persists through a length somewhat greater than at the beginning; the small intestine finally becomes single, and continues thus to its junction with the large intestine, which likewise remains single to its termination; at the

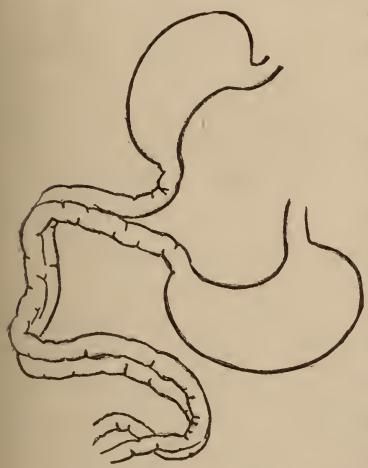

FIG. 3.—STOMACHS AND COMPOUND DUODENUM.

point of beginning of the single tube a small nipple-like diverticulum exists.

The rectum descends to the bottom of the pelvis, where it ends in a cul-de-sac.

The entire length of the small intestine is 1.84 meters (72½ inches); that of the large intestine 66 centimeters (26 inches).

The liver, upon its surface, appears to be a simple organ, but from its posterior inferior border project supernumerary lobes, the evident remains of a second liver. There is but one gall-bladder.

Genito-urinary system. There are three kidneys—a large compound kidney lying in the mid-lumbar sulcus, and one in either lateral lumbar region.

The left kidney is greatly atrophied; the bladder is single; the genital organs single and well developed.

Nervous system. Each head and neck, and each lateral half of the body is supplied by its own cerebro-spinal axis; along the line of fusion only is there any communication between the branches of the two axes.

Remarks. The genus dicephalus, to which this specimen belongs, is characterized by the existence of two distinct and separate heads, either equal or unequal, with various degrees of duplicity in the vertebral column. The component bodies are laterally conjoined; both of the faces look anteriorly, and usually in the same direction. Fisher states that of five hundred cases of human double monsters which are recorded, almost one-third belong to this genus; in these the female sex preponderates in the proportion of about two to one.

Viability. Apart from the accidents of birth, was this monster viable? The answer to this is found in an examination of the structure of the heart and great vessels. Of the compound heart, the left mass displays all the parts of a complete heart, and the arrangement of the great vessels is normal, so that the æration of the blood and its supply to the left child is fully provided for; the right mass is composed of but one auricle and one ventricle; the venous blood passing from the one to the other would have been at once driven on into the right aorta; no pulmonary artery exists to receive even a portion of it for transmis-

sion to the right pair of lungs, which, for purposes of aeration, would accordingly have been useless. No inosculation between any large arteries of the two systems exists to have permitted any admixture of arterial blood with the venous current of the right system. This condition would have entailed immediate asphyxia upon the right child, had the monster been delivered alive; the speedy death of the left child would have followed; this specimen was not viable.

Closely related to this specimen, but illustrating a degree of fusion less extensive is the living female double monster known as the St. Benoit twins. In this being the division extends through the thorax as far as to the abdomen; so that the thoracic organs and the upper extremities, as well as the necks and heads,

FIG. 4.—ROSE-MARIE DOURIN, "THE SAINT BENOIT TWINS."

are separate and distinct. During the months of December, 1878, and January and February, 1879, this being was exhibited by its parents in this city. Upon the 28th of February it completed its first year. During this time I visited it repeatedly, but met with much difficulty in any attempt at thorough examination of it from the unreasonable fears and prejudices of the parents. I was finally successful, however, in obtaining an inspection of

its whole body, and in enabling Mr. Dickinson to make the sketch which accompanies this report, and which represents well its external configuration.

The names *Marie* and *Rose* have been given to the right and left child respectively. Their patronymic is *Drouin*. In the Canada *Medical and Surgical Journal* of October, 1878, I have since found a description of these beings by Prof. D. C. MacCallum, of Montreal, which, as it corresponds with my own later observation, I repeat:

"Marie is more strongly developed and healthier looking than her sister Rosa, who is smaller, darker and more delicate looking. They are both bright, lively and intelligent looking children. The two bodies, from the heads as far as the abdomen, are well formed, perfectly developed, and in a state of good nutrition. The union between them commences at the lower part of the thorax of each, and from that part downwards they present the appearance of one female child; that is, there is but one abdomen with one navel, a genital fissure with the external organs of generation of the female, and two inferior extremities. The floating ribs are distinct in each, as is also the ensiform cartilage. The lateral halves of the abdomen and the inferior extremities correspond in size and development respectively to the body of the same side; and the same remark applies to the labia majora. The spinal columns are distinct and appear to meet at a pelvis common to both, although the fusion of the children commences at some distance above their junction. From near the extremity of each spine a fissure extends downwards and inwards, meeting its fellow of the opposite side at the cleft between the buttocks near the anus, including a somewhat elevated soft fleshy mass, thicker below than above. At a central point between these fissures, at the distance of two and a half inches [64 mm.] from the point where the vertebral columns meet, and three and a half inches [89 mm.] from the anus, there projects a rudimentary limb with a very movable attachment. This limb, which measures five inches [127 mm.] in length, and is provided with a joint, tapers to a fine point, which is furnished with a distinct nail. It is very sensitive, and contracts strongly when slightly irritated.

"The spinal, respiratory, circulatory and digestive systems of these children are quite distinct. They have each a separate diaphragm, and the abdominal muscles on each side of the mesial line, and the limbs of that side are supplied with blood by the vessels, and are under the control of the nervous system of the corresponding child. They have each a distinct stomach and an alimentary canal, which probably opens at a point close to the common anus. It would follow also that the accessory organs of the digestive system are distinct for each child.

"The two fissures behind are evidently the original clefts between the buttocks of each child, one buttock remaining in its integrity, whilst the other in a rudimentary condition is fused with that of the opposite child, forming the soft fleshy mass from the upper part of which the rudimentary limb projects.

"These children are the products of a second gestation. They were born at St. Benoit, county of Two Mountains, on the 28th February, 1878. The mother is a fine, healthy-looking woman, aged 26 years. Her labor lasted seven hours, commencing at 1 A. M. and terminating at 8 A. M. One head and body were first born; this was shortly followed by the lower extremities, and immediately after the second body and head were expelled."

This being belongs to the genus dicephalus; species tetrabrachius tripus.

The St. Benoit twins have now survived their birth a longer period than in any other recorded instance among the three-footed, four-armed dicephalic monsters. The case recorded by MacLaurin, in the Philosophical Transactions, London, 1723, Vol. XXXII. page 346, which lived for two months, is the next longest lived recorded.

When last examined by myself, this being had attained thirteen months of age; its vital functions were all being performed regularly and properly, and the mental development of the two parts was equal to that usual to children of its age. It apparently had as good an expectation of living to maturity as any other infant.

This being, though strictly included in the species to which I have assigned it, still, in consequence of the very rudimentary character of the third pelvic limb, approaches very closely to the

species dicephalus tetrabrachius dipus, which it resembles in its high degree of viability. This rudimentary limb had not grown correspondingly with the rest of the body, and when seen by myself was but little longer than it is described to have been by Dr. MacCallum, ten months before. To this latter species belongs the widely-known case, Ritta-Christina, which died at Paris, November 23d, 1829, having lived eight months and eleven days.

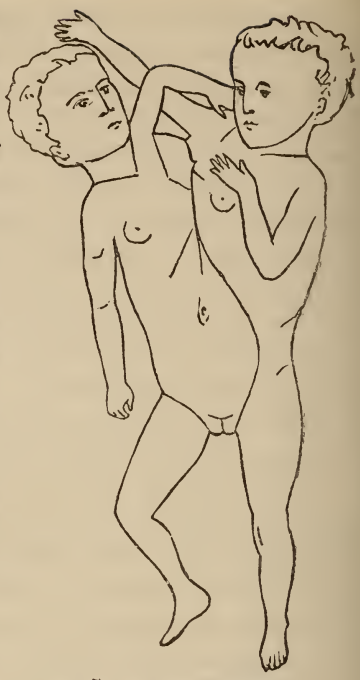

FIG. 5.—RITTA-CHRISTINA.

SPECIMEN II. *Order*, Terata Katadidyma; *Genus*, dicephalus; *Species*, dibrachius; *Variety*, monauchenos.

History: This specimen of two-headed, single-necked monster, with one body and two anterior extremities, is a lamb which was born in the spring of 1874, near Plainfield, N. J. Having been at once discarded by its mother, it was spoon-fed for a time; it received nourishment by one mouth only, some imperfection seeming to exist in the other. It lived between two and three weeks. It was then prepared by a taxidermist, and no record made of its internal structure. It was afterwards secured by Dr. A. R. Matheson, by whom it has been presented to the museum of the society.

FIG. 6.—TWO-HEADED LAMB.

Description : The heads are equal and perfect, as far as external examination shows ; they form an obtuse angle with each other as they spring from the single neck ; the neck externally shows no evidence of duplicity, although undoubtedly there did exist some duplicity in the upper cervical vertebræ. It is to be regretted that the arrangements of the tracheæ and œsophagi cannot be ascertained.

According to Fisher, this an extremely rare variety of duplex formation, so much so that only two or three examples of it have ever been recorded.

SPECIMEN III. *Order*, Terata Katadidyma; *Genus*, diprosopus ; *Variety*, triophthalmus.

This specimen of double-faced, three-eyed monster, is a small chick, the history of which is unknown. It was presented to the museum by Mr. James E. Pilcher. The accompanying figures admirably exhibit the degree of duplicity present. The angle made by the converging facial planes is very acute, so that the two bills are nearly parallel, and but little separated from each other. The median eye, its palpebæ being single, presents two globes within its orbit, which are fused together.

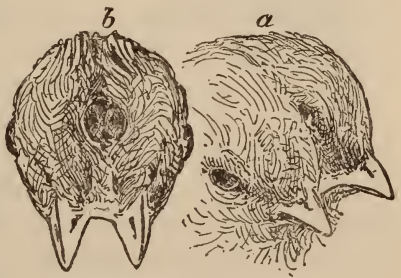


FIG. 7. DONBLE-FACED CHICK.
*a*. side view. *b* front view of same.

These three museum specimens, together with the Saint Benoit twins, illustrate well a gradually descending scale of duplicity resulting from a less and less degree of divergence of the cephalic extremities of two primitive traces. They are all well-marked examples of monsters duplex with downward cleavage. The order of monsters duplex with upward cleavage is equally well represented in the two remaining specimens in which the vertebral axes, independent and divergent at their caudal ends, gradually approach until finally they become fused at their cephalic ends.

SPECIMENS IV. and V. *Order*, Terata Anadidyma; *Genus*, syncephalus ; *Species*, monoprosopus.

FIG. 8.—SKELETON OF SYNCEPHALIC DOG.

These two specimems of double-bodied, single-headed, single-faced monsters are identical with each other in their general character. Specimen IV. (Fig. 8.) consists of the skeleton of a duplex puppy which did not survive its birth. It was presented by Dr. J. H. Raymond, and prepared by the writer. The sex was female. There was a common umbilical cord, containing a single umbilical vein; the liver was compound; the stomach and upper two-thirds of the small intestine were single, the intestinal canal then bifurcated and was double to it send; the genito-urinary systems were independent and complete for each body; the thorax contained two perfect sets of lungs; the hearts were fused.

Specimen V. (Fig. 9.) is a duplex chick which was presented by Dr. George W. Baker. Its viscera have not been examined. In these specimens, the head presents no external trace of duplicity; the spinal axes of the compound body, closely juxtaposed at their cephalic extremities, rapidly diverge, and from each of them is developed a complete bony skeleton; these blend so as to form a compound thorax as follows: each lateral half of the sternum with its proper ribs is reflected outward to the right and to the left, and becomes conjoined to the corresponding half sternum of the opposite skeleton. The thoracic cavity thus resulting has a sternum

FIG. 9. SYNCEPHALIC CHICK.

anteriorly, and posteriorly a vertebral column at either side, and walls composed of forty-eight ribs. Four complete anterior extremities spring from this thorax. Each pelvis is separate and distinct, and has its perfectly developed limbs. In the case of the pup the fusion extended as far as to the umbilicus In the case of the chick the fused abdomens form a demi-ovoid body suspended between the four feet of the animal. It did not survive its birth. According to Is. G. Saint Hilaire (1832) this class of monstrosities is comparatively common among animals, but very rare in man, to but two cases of which is he able to refer. Fisher's treatise is still incomplete: the published part of it does not include the syncephali, but in his manuscript, which I have been permitted to examine, I find mention of eight recorded instances of human syncephali.

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HYDROBROMIC ETHER AS AN ANÆSTHETIC.—The experiments of Rabuteau on the lower animals to demonstrate the anæsthetic properties of hydrobromic ether have, says the *Boston Medical and Surgical Journal*, led Dr. Turnbull of Philadelphia to employ it on the human subject. His successful results have induced others to make use of the substance, and Dr. Lewis has used it for large operations at the Pennsylvania Hospital with gratifying success. Four cases are recorded, viz., amputation of the forearm at the upper third; perineal section for stricture of urethra; resection of stump after former amputation of the arm; and in a case of fracture of both legs, where it was administered in order that a careful examination might be made and tenotomy be performed. The after-effects of the inhalation are less severe than those following the use of chloroform, and the return to consciousness very much more rapid. Though its claims to be admitted into general use are said to be strong, it is admitted that it needs more careful observation to establish it firmly as a safe anæsthetic in general surgery.—*Medical Press and Circular* 14th January, 1880.

# Summary.

*Collaborators:*

DR. L. W. CASE, DR. R. TILLEY.

## PRACTICAL MEDICINE.

ON ALCOHOLIC VASCULAR TENSION AND ITS EFFECTS.—(By John C. Thorowgood, M.D., F.R.C.P.)—*Medical Press and Circular*, 21st January, 1880.

Persistent excess in the use of alcohol by a healthy person maintains a condition of extra pressure and strain on the small vessels, which at last finds relief in hæmorrhage. If the patient be somewhat on in years, and have weak degenerative vessels, then a condition of tightness and over-pressure is most dangerous. How often do we have to see a robust-looking man suddenly struck down by cerebral hæmorrhage? Probably he has had a good dinner and drunk liberally, and when the doctor arrives and finds the poor man senseless on the sofa, every one says that he had been congratulated only the day before, and told how well he was looking. Supposing the vascular tension induced by a too free use of alcohol does not at once issue in a bleeding, it appears to maintain a constant strain on the heart and vessels, which seriously impairs the nutrition of the structure, so that the weak and wasted coats of the blood-vessels become very prone to laceration and rupture—a condition well expressed by the popular term, "rotten from drink." Thus cirrhosis of the liver and granular disease of the kidney may be set going. The variability in the degree of blood-pressure, according as the patient is or

is not under alcoholic influence, produces a singular irritability of the nervous system. Sleepless nights with palpitating heart, morning retching and coughing, and utter want of appetite for breakfast, are among a few of these effects. Want of decision on momentous points, impatience and recklessness, tinglings, numbness, and shooting pains, are other signs of disturbed innervation. The sudden withdrawal of all stimulus from those persons who have been living in a perpetual state of excessive tension and strain is followed by more or less collapse and sense of exhaustion and sinking, driving a few weak ones back to the drink as being their only safeguard from doing something dreadful. The best advice to give during this very painful and trying crisis is to encourage the patient to outlive it, by assuring him that it is but temporary, and to take care that he is well supplied with the best of nourishment, and with good fresh coffee when he feels especially down and low, while at the same time he takes a bitter tonic medicine; and, under this regimen and a fair amount of resolution on his own part, there comes in time a renewal of life and a restoration of nerve that is most satisfactory to witness.

CASE OF PRECOCIOUS HYSTERIA.—M. Ad. Henrot. (*Union Méd. du Nord-Est.*, Dec., 1879, p. 363.)

The author reports the case of a young girl, aged 12 years, who suddenly, without any known reason, had convulsive attacks, with suffocation, cough, barking and esophageal spasms.

The attacks were very frequent, and had existed twelve days when the author saw the case for the first time. Her physiognomy was excellent, and nothing in her general condition would give rise to a suspicion of so profound a disturbance of the nervous system. The entire series of antispasmodic medicines had been employed without any result. M. Henrot thought it advisable to make use of a tolerably energetic means which had proved of value in analogous cases. At the first nervous attack which the young hysteric had in his presence, he flagellated her unmercifully with a napkin dipped in cold water. The attack ceased at once. Since that, the nervous troubles have completely disappeared.

## SURGERY.

PARAPHIMOSIS—SIMPLE MODE OF REDUCTION.—(*Le Praticien*, No. 1, 1880.)

In very difficult cases, where ordinary means fail, Bardinet proceeds as follows: he takes a hair-pin, presses the points together somewhat, and inserts the curved end under the strangulation back of the gland. He then applies a second and a third at intervals around the gland; then, drawing the prepuce forwards, reduces it with great facility, the skin sliding over the three bridges without obstruction.

ERECTILE TUMOR TREATED BY INJECTION OF CHLORAL.—Dr. Antonio Pupi. (*Le Sperimentale* and *Le Praticien*, No. 62, 1879.)

A rapidly growing erectile tumor of the naso-palpebral region was injected at intervals of fifteen days with an aqueous solution of chloral, 1 to 10. After each injection, the consecutive tumefaction was almost immediate, but not painful, and only lasted four or five days. The cure was as complete as possible, scarcely any traces of the tumor being visible.

SPERMATIC COLIC.—M. Reliquet. (*Journ. de Méd.*, Dec., 1879, p. 552.)

The author reports the case of a man fifty years of age, in whom a diagnosis of tubercles of the prostate was made, and who presented the following symptoms; at first, sharp pains during coitus; painful excitation of the perineum, with frequent desire to urinate when riding in vehicles; on several occasions, brusque emission of a liquid analogous to the semen. The frequent desire to urinate became insupportable.

Rectal examination revealed a prostate with unequal lobes, the right presenting a well-defined protuberance prolonged backward, and continuous with the seminal vesicle. Pressure with the finger but slightly painful, but caused a desire to urinate. On introducing an elastic bougie, and pressing the tumor between the sound and the finger, a greyish mass escaped, resembling vermi-

celli, and the tumor diminished. Examination showed this to be composed of altered spermatozoa and mucus.

The spermatic colic, the retention of the semen in an altered ejaculatory canal, caused all the accidents. After repeated soundings, and further evacuations of this matter, the tumor disappeared. At the same time, the reflex trouble of micturition disappeared; even the bladder had been imperfectly emptied.

M. Reliquet has already noticed an analogous case, where the evacuation was caused by the presence of a lithoclast in the urethra.

He thinks, moreover, that real spermatic colic, less severe, exists especially in continent persons, which coitus relieves for a few days. The curative indications are very clear. One must understand this repletion to explain certain troubles of micturition, which otherwise remain inexplicable.

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## THERAPEUTICS.

UNALTERABLE COLD-CREAM.—The *Repertoire de Pharmacie* gives the following formula for a cold-cream that possesses the property of not becoming rancid:

| | | |
|---|---|---|
| Quince mucilage.....(℥ijss) | 40 | grams. |
| Almond soap..... .....(gr. xv) | 1 | " |
| Stearic acid.....(℥ijss) | 10 | " |
| Glycerine .....(℥ss) | 2 | " |

EXTERNAL USE OF ATROPINE FOR THE PAIN OF CANCERS.—(*Gaz. Obstet.*, Jan. 20, 1880.)

M. Anger uses, with great success, compresses saturated with a neutral solution of sulphate of atropia, and applied over the seat of pain. The compress is covered with oiled taffeta, or better with sheets of gutta percha, to prevent evaporation, and renewed three or four times a day.

The strength of the solution employed is (grs. xv) 1 gram of the sulphate to (Oij) 1,000 grams of water. He has never seen signs of absorption of the medicine, such as dilatation of the pupil, dryness of the throat, etc. This action is not denied, but it is pre-

sumable that the action is local, contraction of the vessels, diminution of the sensibility. The facility of applying it, and the cleanness of this method, give marked advantages over hypodermic injections and ointments. At the same time, the marked relief observed in the terrible pains of cancer seem to recommend its use.

TREATMENT OF SCARLET FEVER.—Archambault. (*Le Praticien*, No. 2, 1880.)

*Hygienic.*—An airy room, no more than the ordinary covering; keep the patient in bed as long as possible, even though the malady seems to have terminated about the seventh or eighth day, when desquamation begins; precautions against taking cold for three or four weeks, for nephritis, which commences from the twelfth to the twenty-third day, rarely comes on after the fourth week. Cover the articulations well, as they are frequently subject to rheumatism or arthritis. The patient should not go out before the sixth week. Baths after the third week. To allay itching, cold-cream and glycerine, or simple dusting with starch powder. Restricted diet at first; more nutritive diet after the fever recedes.

*Medical Treatment.*—If the eruption is long in appearing, borage tea and a potion of (ʒss) 2 grams of acetate of ammonia in (ʒiv) 125 grams of mucilaginous mixture. Correct constipation with castor oil or rhubarb. When the eruption is free, give emollient or cooling drinks. If delirium comes on, give bromide of potassium.

| | | |
|---|---|---|
| Bromide of potassium..... | (ʒss–j) | 2 to 4 grams. |
| Syrup of cherry laurel..... | (ʒss) | 20 grams. |
| Syrup diacoccymelon..... | (ʒijss) | 10 " |
| Hydralate of tilia..... | (ʒiij) | 100 " |

of which the child takes a tablespoonful hourly.

*Treatment of the Angina.*—Chlorate of potassium as a gargle, or in younger children in the form of pastilles or mixed with sugar. Caustics are useless. The physician should exercise a rigorous surveillance, even in the simplest cases in appearance, as they may be followed by nephritis, endocarditis, or articular rheumatism.

# Items.

COMMENCEMENT EXERCISES OF RUSH MEDICAL COLLEGE.

The thirty-seventh annual commencement exercises of Rush Medical College were held on Tuesday, February 24th, 1880, at 2:30 P. M., at the Third Presbyterian Church, corner of Ogden and Ashland avenues.

The following was the order of exercises:

1, Music; 2, Prayer; 3, Music; 4, Secretary's Report of the College Year; 5, Conferring of Degrees; 6, Music; 7, Charge of Acting-President Miller; 8, Response, on behalf of the class, by Dr. C. H. Lewis; 9, Music; 10. Valedictory Address, by Prof. Henry M. Lyman; 11, Music; 12, Benediction; 13, Music.

Following is the list of the Graduating Class of 1880:

*Officers of the Class.*—T. W. Brophy, President; S. S. McArthur, Vice-President; J. R. Robinson, Secretary; C. H. Lewis, Valedictorian.

*Executive Committee.*—E. H. Disbrow, S. C. Waters, H. Pritchard, E. S. Talbot, R. C. Meacher.

Johnson Armstrong, George Frank Allen, Winfield Ackley, M. D., Truman William Brophy, D. D. S., Samuel Cleland Bowman, John Anthony Badgley, Luther George Bass, B. A., Raymond Willis Battles, Franklin Albert Butterfield, George Frederick Bradley, Frank Preston Brown, Ignatius Bronish, Robert Leonard Boon, Fernando Wood Burdick, Marion Cazier, Willis Clay, David Gray Campbell, Charles Henry Carter, James Sylvester Collins, George Thomas Carpenter, D. D. S., John Francis Cully, Patrick William Conway, James Coolidge, John Franklin Cameron, Charles William Cruter, B. S., Francis Conrath, PH. G., James William Campbell, John Douglass Camerer, John Cicero Capps, James Calvin Clark, William George Dwyer, Joseph F.

Dicus, Ernest David Disbrow, Herbert William Davis, Calvin Todd Dripps, A. M., William Henry Earles, William Harter Everhard, Aaron Welch Edmiston, Henry Alonzo Ediston, William Henry Ellis, Hurford Edmur Farley, Francis William Fitzgerald, PH. G., Edward Fischer, A. B , Albert Lawrence Farr, George Henry Grose, John Colton Goodspeed, Charles Wesley Gordon, M. D., Joseph Godfrey, Myron Page Goodwin, William Greig, William Frank Graham, B. S., Levi Atchley Golden, William T. Green, William Elvis Harwood, William Arthur Hawley, Mortimer Lambert Hildreth, Herbert Dainy Hill, William Franklin Howe, Warner Holt, M. L., Samuel Ferdinand Hammond, Isaac William Hanna, Alvin Coles Hiester, William Clark Hill, Furman Springer Hand, Joseph Haven, J. Nathaniel Henry Huggins, John Alexander Inks, William Johnson, Claes William Johnson, Frank Joseph Jirka, Addison Coffea James, George Edwin Jackson, George Kernahan, Joshua Moffitt Kidney, Herbert Kendall, William Henry Lewis, William Bardwell Lyman, John Van Reed Lyman, Seth Ward Lacy, William Albert Lisman, Clinton Huntington Lewis, B. S., Peter Thames Mogstad, A. M., Nathaniel Massie McKitterick, George Bessore McCosh, Walter Scott Mason, Michael H. McGrath, Melvin Lazelle Moore, Julian Edwin Murray, Robert Edward Miller, John Hale Mannon, A. M., French Moore, Byron Coleman Meacher, Ezekial P. Murdock, A. M., Lucien Edward Murray, Willis Fremont Moore, Lewis Linn McArthur, John Leonard Mulfinger, PH. G., Marshall Thomas Martin, Joseph Converse McCormick, M. D., John Crittenden Nichols, John William Neill, Charles Frederick Nitz, Adamson Bentley Newkirk, Nelson Eugene Oliver, Daniel Samuel O'Brien, Harry Pritchard, Charles Nelson Palmer, Charles David Parks, Albert David Pyke, Francis Isaac Pinch, Eugene Beauharnoise Perry, James Franklin Paul. M. D., Will Aerious Quigley, John Hiram Quinn, Herman Reineking, George Jacob Rubleman, Monroe Griffith Reynolds, John A. Robinson, A. B., Emery Waland Roe, John Ritter, Charles Lester Stadler, Frank Buchanan Smith, Philip D. Shunk, Allen Vinton Smith, John Fritz Herbert Sugg, George Cassius Synon, B. S., E. Hudson Sammons, Thomas Jefferson Shaw, George Charles Somers, Walter Henderson Scott, Eugene

Colvin Southard, Albert John Scholl, Eugene Solomon Talbot, D. D. S., George Lytle Turner, William Wilson Torrence, Ely Judson Tanner, Milton Van Dyke, Walter Nathaniel Vilas, Charles Douglass Wright, Albert John Woodcock, Henry V. Worley, Peter N. Woods, M. D., Lisle Cummins Waters, Harmon Jackson Wall.

ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE. GRAND PACIFIC HOTEL, FEBRUARY 24, 1880.

The Alumni Association of Rush Medical College was called to order at 8 p. m. by the President, Dr. Robert M. McArthur, of Ottawa, Ill. A large number of the old Alumni and the recent graduates were present.

The secretary's minutes of the last meeting were read and approved, and the resolutions offered by Dr. Ingals at the last annual meeting, regarding the course of training in the college, were adopted by the association.

"The Alumni of Rush Medical College desire to express, in a formal and public manner, the affectionate regard we entertain for our Alma Mater, our pride in her past history, and our confident hopes for her increased usefulness in the future. We hold that her supreme duty to the public, which has always accorded her a generous support, demands that her first aim and object should be to aid in exalting the attainments of the medical profession, and by so doing to increase its usefulness, power and respectability. As a mode of accomplishing these results we would respectfully offer to the board of trustees of the college the following suggestions:

"*First.* To increase the regular annual term of college instruction to a period of not less than nine months.

"*Second.* To require attendance on three full terms of medical lectures as a pre-requisite to admission to examination for the degree of Doctor of Medicine.

"*Third.* To institute preliminary examinations for students who apply for matriculation to the school, and admit only such as have at least a thorough English education."

The treasurer's report was next read and approved. The executive committee then presented the list of names nominated for

officers of the association for the ensuing year. The officers were elected *viva voce*, the nominations of the committee being unanimously concurred in. The officers elected were as follows: President, Solon Marks, Milwaukee, Wis.; 1st Vice President, W. C. Hunt, Chicago; 2d Vice President, S. T. Ferguson, Minooka, Ill.; Secretary and Treasurer, E. Fletcher Ingals, Chicago; Executive Committee, James Nevins Hyde, T. Davis Fitch and F. Henrotin, Chicago.

The president's address was next in order. It will be found in the printed transactions. After the reading of the president's address the association adjourned to the upper rooms, where some time was spent in social converse before the guests were invited to the banquet hall. The Alumni were called by classes and were so seated that acquaintances were placed at the same table, an arrangement which greatly added to the pleasure of the evening.

The after-dinner speeches were as follows: Toasts—1. "The graduates of long ago," which was responded to by Dr. Solon Marks, of Milwaukee. 2. "Our visiting Alumni," responded to by Dr. Wm. Meachum, of Racine. 3. "The Spring Faculty," responded to by Dr. J. Suydam Knox, of Chicago. 4. "Clinical Instruction," responded to by Dr. S. D. Jacobson, of the Cook County Hospital. 5. "The best class graduated," responded to by Dr. C. T. Dripps. 6. "The Profession of Medicine," responded to by the well-known humorist Dr. Charles Gilman Smith. 7. The seventh toast, "Old Rush," was responded to by Prof. Delaskie Miller, who compared the growth of the college to that of our honored guest (Gov. Cullom), the chief executive of our State. He pointed out the steady and efficient growth which had taken place in the processes of medical education, and called attention to the vastly increased facilities which were now offered for thorough training in the healing art.

The master of ceremonies then called upon Dr. P. W. Brophy, a well-known dentist of this city, who, together with his fellows, Drs. Talbot and Carpenter, had that day, after great sacrifices for the last three years, added to their titles of D. D. S. that of Doctor of Medicine.

Dr. Brophy related the history of dentistry, and stated his firm conviction that dentistry must become one of the specialties

of medicine before it could properly be called a profession. He believed that ere long it would be considered necessary for every dentist to have a thorough medical training before he was fitted for that branch of the profession.

The association then adjourned to meet on commencement day at the close of the next session.

A letter was then read from Prof. H. A. Johnson, of the Chicago Medical College, an alumnus of Rush College, Class of '52. Dr. Johnson had consented to reply to the sentiment in the 6th toast, but at the time of the gathering he was confined to his room by sickness. His letter was received with applause which was only limited by our regret that its author could not be present.

Many letters of regret had been received by the Secretary from the Alumni in distant parts of the country, but owing to the lateness of the hour only one of them could be read. At the request of the toast-master the secretary read the letter of Dr. Arthur Young, of Prescott, Wisconsin, class of 1853.

Dr. Young was one of those who knew the worth of a thorough medical education, and who had himself taken the full course of lectures before entering upon *his* professional career. He wrote feelingly of the departed ones who had lectured to the classes of his college days, and to many of his own classmates who "rested from their labors." With pride he pointed to the past and with firm hope to the future of Alma Mater.

### THE CHICAGO MEDICAL COLLEGE.

The twenty-first commencement of the Chicago Medical College, Medical Department Northwestern University, occurred on March 30th in Plymouth Congregational church. A large audience was present, including members of the college with their friends. The music was furnished by a section of the Chicago orchestra. The exercises passed off pleasantly, many floral tributes being presented to the members of the graduating class.

The Rev. C. H. Everest offered the opening prayer. This was followed by the awarding of prizes. The standard prizes for the best graduating theses were awarded to F. H. Kimball and J. E. Bumstead. The prize offered by Dr. C. W. Earle, Dr. Smith's

work on diseases of children, was awarded to N. E. Oliver for the highest proficiency in that department. A valuable work on surgery by S. D. Gross, offered by Dr. N. Senn, of Milwaukee, for the best anatomical preparation, was awarded to T. N. Miller. Prizes for the best work in anatomy were awarded to J. J. Fordyce and Frank Billings, in virtue of which they will be assistant acting demonstrators of anatomy. E. Andrews, Frank Johnson, and W. S. Gates also received honorable mention and will act as alternates to the above. Prof. R. L. Rea, the professor of anatomy, awarded to Frank Billings and A. M. Vail, a prize each for the best work in his department. The prize was a gold medal engraved with the letter "A" and a $10 gold piece. The prize for the best chemical work was awarded to Frank Billings, and for best labratory work by members of the junior class to E. L. Hollister; for best lecture notes to J. E. Marshall. These prizes consisted of standard works on medical chemistry.

Diplomas were then conferred to

THE GRADUATING CLASS

as follows:

Hiram H. Baldwin, James E. Bumstead, James Carter, J. Madison G. Carter, Andrew J. Coey, Charles E. Cook, John C. Cook, George R. Colby, William Dodd, A. A. Eddy, Wyman H. Fisher, William E. Gallup, Edgar A. Holmes, John I. Hostetter, Fred. O. Hoyt, Levi H. Johnson, Charles L. King, Frank H. Kimball, James J. Larkin, Frank H. Martin, Thomas N. Miller, George W. Mason, Nathaniel E. Oliver, Fred J. Parkhurst, Ernest Pierpoint, Lorenzo T. Potter, R. W. Emerson Puckett, John N. Pascoe, Fred. D. Rodgers, George U. Runcie, Willis S. Reynolds, Hein Terhorst, Homer H. Throop, Newton M. Wade, Thomas A. Ward, Milton P. White.

The ad eundem degree to graduates of other colleges was given to Benjamin F. Black and W. Frank Hicks. The appointments to the house staff of Mercy Hospital for the ensuing year were made to James J. Larkin, Frank H. Martin, and L. T. Potter, all of them being members of the graduating class. These degrees and appointments were accompanied by a few appropriate words by Prof. N. S. Davis.

A feeling response on behalf of the class was made by George W. Mason, and the valedictory address on behalf of the faculty by Prof. E. W. Jenks.

At the close of the exercises it was announced that the practitioners' course of study to last four weeks would commence at once.

### A BUSINESS MEETING.

In the evening the annual business and fourteenth reunion of the Alumni Association was held at the Tremont House. The business meeting was presided over by Dr. Norman Bridge, first vice-president, who, on assuming the chair, referred in a few appropriate words to the death of Dr. John M. Woodworth, president of the association.

During the absence of the committee appointed to nominate officers for the ensuing year, the necrologist's report was read, and showed a record of four deaths in the roll of membership during the past year. These were Dr. D. H. Alvis, class of '70, Kewaunee, Ill.; Dr. Zenophan Chapman, class of '74, Leadville; Dr. F. A. Beck, class of '77, Chicago, and Dr. G. H. A. Sienank, class of '77, Silver Lake, Kan. On the the close of the reading of the necrologist's report, Dr. Norman Bridge again referred to the death of President Woodworth, paying an eloquent tribute to the memory of the deceased gentleman. Other members of the association also referred to the deceased president and members.

The nominating committee then reported the following list of officers, which was unanimously adopted:

Dr. W. E. Quine, president, Chicago; Dr. Webber, first vice president, Detroit; Dr. Fitch, second vice-president, Rockford; Dr. D. A. K. Steele, secretary and treasurer, Chicago; Dr. Waxham, necrologist, Chicago.

Dr. Steele, who has served as secretary and treasurer of the association for over five years, gave notice of his intended resignation at the next annual reunion.

### THE BANQUET.

This closed the business meeting and the members of the association to the number of one hundred, accompanied by a dozen or

so members of the present year's graduating class, repaired to the ladies' ordinary, where the social exercises of the evening were indulged in. Dr. Quine, the newly-elected president, occupied the seat of honor, upon assuming which he fittingly thanked the association for the honors conferred upon him.

The programme had assigned Dr. Lyman Ware to deliver the address of welcome, but owing to the absence of that gentleman the banquet was proceeded with in an informal way. At its close toasts and responses followed in rapid succession. "The Old Folks" was responded to by Prof. R. L. Rea, of this city; "Big Brothers," by Dr. Webber, of Detroit; "The Baby," by Dr. F. H. Kimball, of Chicago, and "First Cousins," by Hon. J. S. Grinnell, of Iowa. A number of impromptu toasts were given and responded to by Drs. Hosmer A. Johnson, Rev. Dr. Edwards and others, the gathering indulging in the pleasures of the occasion until a late hour.

WOMAN'S MEDICAL COLLEGE OF CHICAGO.

THE tenth annual commencement of the Woman's Medical College of Chicago was held at the Union Park Congregational Church, March 2d, 1880.

Prof. Wm. H. Byford, president, conferred the degree upon Addie Akins, Jennie M. Dobson, A. M. Davenport, Jennie E. Hayner, Elizabeth McKittrick, Emma M. Nichols, Julia M. Patten, Amelia Augur Platt, Mary Lyman Rockwell and Eugenia A. Watts.

A special certificate was given Mrs. M. L. Rockwell, Mrs. Amelia A. Platt and Mis A. M. Davenport for general proficiency and for attendance upon three full courses of lectures.

Prizes for special merit, as evinced on examinations, were awarded to Miss Jennie E. Hayner and Miss A. M. Davenport.

The class valedictory was delivered by Miss Julia M. Patten.

The faculty address by Prof. I. N. Danforth.

An elegant entertainment was given by Prof. C. W. Earle, at his residence, at the close of the exercises, to the graduating class, the alumni of the college and their friends.

Miss Emma M. Nichols, M.D., has been appointed House Physician at the Woman's Hospital of the State of Illinois, and Miss

Jennie E. Hayner, M.D., Resident Physician at the Chicago Hospital for Women and Children. The appointments were made after a competitive examination.

MEDICAL DEPARTMENT, IOWA STATE UNIVERSITY.

The commencement of the Medical Department of the Iowa State University was held in the opera house at Iowa City, on Wednesday evening March 3d.

President Pickard conferred the degree of M.D. upon the following ladies and gentlemen:

Miss H. A. Conniff, Miss Olive Morris, L. H. Munn, W. J. Saunders, T. J. Shuell, R. J. C. Dodds, A. C. Jennis, G. M. Barber, John Riley, P. O'Hair, J. C. Davies, F. S. Johnson, W. K. Williams, H. Parrish, C. E. Nichols, W. E. Edgerton, J. C. Wright, John R. Coxe, C. P. Dolan, T. J. Williams, A. D. Paine, L. L. Renshaw.

This class had been examined for two days by a board of examiners, members of the Iowa State Medical Society, consisting of Dr. Fitch, Charles City, chairman; Dr. Clark, Grinnell; Dr. Dean, Muscatine; Dr. Wright, Carroll; Dr. Kersey, Stuart; Dr. Thomas Walnut, secretary, who together with the faculty, passed upon the qualifications of students.

T. S. Johnson delivered the valedictory for the class, and Dr. W. F. Peck, dean, delivered the address for the faculty.

THE Alumni Association of Cook County Hospital Internes held its annual reunion at the Tremont House, February 23d. The association now contains more than forty names on its membership roll, though not more than half that number were present. One or two members of the medical board were also present. Dr. Fox of Milwaukee, the president, was unavoidably detained at the eleventh hour, and Dr. Strong was made chairman for the evening. The usual routine business was transacted, letters of regret from absentees read, and Dr. Gephart of Kansas elected president for the ensuing year. A bountiful repast was served in the ladies' ordinary, and the alumni finally adjourned amid a cloud of smoke at a late hour.

ROSWELL PARK, *Permanent Secretary.*

AMERICAN MEDICAL ASSOCIATION.

PHILADELPHIA, 1400 PINE STREET,
*Southwest corner Broad.*

The thirty first annual session will be held in the city of New York, on Tuesday, Wednesday, Thursday and Friday, June 1, 2, 3 and 4, 1880, commencing on Tuesday at 11 a. m.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy of the United States."

"Each State, county and district medical society entitled to representation shall have the privilege of sending to the association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the code of ethics of the association."

Secretaries of medical societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

SECTIONS.—"The chairman of the several Sections shall prepare and read in the general sessions of the association, papers on the advances and discoveries of the past year in the branches of science included in their respective Sections. * * *"—BY-LAWS, Art. II. Sec. 4.

*Practice of Medicine, Materia Medica and Physiology.*—Dr. J. S. Lynch, Baltimore, Md., *Chairman;* Dr. W. C. Glasgow, St. Louis, Mo., *Secretary.*

*Obstetrics and Diseases of Women and Children.*—Dr. Albert H. Smith, Philadelphia, Pa., *Chairman;* Dr. Robert Battey, Rome, Ga., *Secretary.*

*Surgery and Anatomy.*—Dr. W. T. Briggs, Nashville, Tenn., *Chairman;* Dr. C. Powell Adams, Hastings, Minn., *Secretary.*

*Medical Jurisprudence, Chemistry, Pyschology, State Medicine and Public Hygiene.*—Dr. Jas. F. Hibberd, Richmond, Ind., *Chairman;* Dr. Thos. F. Wood, Wilmington, N. C., *Secretary.*

*Ophthalmology, Otology, and Laryngology.*—Dr. Bolling A. Pope, New Orleans, La., *Chairman;* Dr. Eugene Smith, Detroit, Mich., *Secretary.*

The following committees are expected to report:

*On Prize Essays.*—Dr. Austin Flint, New York, *Chairman.*

*On Necrology.*—Dr. J. M. Toner, Washington, D. C., *Chairman.*

*On Catalogue of National Library.*—Dr. H. C. Wood, Pa., *Chairman.*

*On Ozone.*—Dr. N. S. Davis, Chicago, Ill., *Chairman.*

*On Metric System.*—Dr. T. Parvin, Indianapolis, Ind., *Chairman.*

*On State Medical Societies.*—Dr. S. D. Gross, Philadelphia, *Chairman.*

To be acted upon:

*Changes in By-Laws* proposed by Committee on the Address of the President.

1. Expunge from Section III everything relating to Prize Essays, and the Committee on Prize Essays.

2. Introduce into Section II the following laws:

*Prize Essays.*

(*a.*) There shall be four annual prizes of two hundred and fifty dollars each, which shall be awarded at the close of the second year after announcement, as hereinafter explained, for strictly original contributions to medical and surgical progress.

(*b.*) It shall be the duty of the chairman of each of the following four Sections: 1. Practical Medicine, Materia Medica, and Physiology; 2. Obstetrics and Diseases of Women and Children; 3. Surgery and Anatomy; 4. State Medicine and Public Hygiene, to appoint annually before the adjournment of the meeting of the Association three members of ability and good judgment, who shall constitute a Committee of Selection, and who shall, within thirty days thereafter, select and publicly announce for competitive investigation and report, a subject belonging to one or other of the branches of medicine included in the title of the Section.

(*c.*) It shall also be the duty of the chairman of each of the Sections mentioned to appoint annually a Committee of Award,

consisting of three experts, who shall carefully examine the essays offered for competition, and if any one shall be found worthy of the prize as a substantial contribution to medical knowledge, to recommend the same to the Association.

(*d.*) All essays placed by their authors for competition shall be in the hands of the chairman of the respective Committees of Award on or before the first day of January preceding the meeting of the Association at which the reports of the committees are required to be made.

(*e.*) All Prize Essays shall be considered as the property of the Association.

(*f.*) The names of the authors of the competing essays shall be kept secret from the committees by such means as the latter may provide.

(*g.*) Membership in either of the two committees shall not debar from membership in the other; nor shall membership in the Committee of Selection exclude a member from the privilege of offering a competing essay.

*Amendments proposed by* DR. JOHN H. RAUCH.

AMENDMENT TO THE CONSTITUTION.

Article II., second paragraph, after "Army and Navy" insert "and the Marine Hospital Service of the United States."

Article II., fourth paragraph, at the end insert "the Marine Hospital Service of the United States shall be entitled to one delegate."

Will you kindly send to the undersigned a list of your members, with their residences, in order that a correct record may be made of all who are in affiliation with this body?

W. B. ATKINSON,
*Permanent Secretary.*

ILLINOIS STATE MEDICAL SOCIETY.—The next regular annual meeting of this Society will be held in Belleville, Ill., commencing on the morning of the *third Tuesday* in May. The local Committee of Arrangements are making all needed arrangements for a good meeting. The following committees are expected to report:

*Committee of Arrangements.*—Drs. T. B. Moore, Belleville; Washington West, Belleville; T. M. Armstrong, Madison Co.; Wm. R. McKenzie, Randolph Co.; H. Z. Gill, Jerseyville.

*Committee on Practical Medicine.*—W. S. Caldwell, Warren; F. B. Haller, Vandalia; J. S. Whitmire, Metamora.

*Committee on Surgery.*—W. Hill, Bloomington; A. C. Rankin, Loda; J. G. Harvey, Grove City.

*Committee on Obstetrics.*—G. W. Nesbitt, Sycamore; E. L. Herriott, Grafton; I. W. Fink, Hillsboro.

*Committee on Gynæcology.*—T. Davis Fitch, Chicago; J. Y. Campbell, Paxton; L. H. Corr, Carlinville.

*Committee on Ophthalmology.*—W. T. Montgomery, Chicago; J. M. Everett, Dixon; J. P. Johnson, Peoria.

*Committee on Drugs and Medicines.*—C. B. Johnson, Champaign; Jehu Little, Bloomington; Thos. Whitten, Irving.

*Committee on Necrology.*—T. F. Worrell, Bloomington; G. W. Albin, Neoga; E. Ingals, Chicago.

*Vacancies in Judicial Council.*—F. B. Haller, Vandalia; E. Ingals, Chicago; M. W. Walton, Ridott.

*Committee on State Register.*—E. P. Cook, Mendota; F. L. Matthews, Springfield; D. S. Booth, Sparta.

SPECIAL COMMITTEES.

*Committee on Croup.*—H. Z. Gill, Jerseyville.

*Committee on Diseases of Children.*—Chas. W. Earle, Chicago; M. W. Walton, Ridott.

*Committee on Pelvic Cellulitis* (*Parametritis*).—P. L. Dieffenbacher, Havana.

*Committee on Pneumonia.*—J. Maclay Armstrong.

*Committee on Antiseptic Surgery.*—Edwin Powell, Chicago.

*Committee on Abnormal Thermal Conditions in Diseases, and the Means of Controlling Them.*—J. H. Hollister, Chicago.

APROPOS of the interesting paper on monsters, which appears in another column, it is reported in a medical publication foreign to this city, that a new institution is to be established here, to be called the Union College of Medicine, with a faculty to be composed of representatives of all the 'pathies! Monstrum horrendum!

## ANNOUNCEMENTS FOR THE MONTH.

### SOCIETY MEETINGS.

Chicago Medical Society—Mondays, April 5 and 19.

West Chicago Medical Society—Mondays, April 12 and 26.

### CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.

Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.

Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.

Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard; 3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Hollister.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.

Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.

Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.

Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.

Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.

Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

THE

CHICAGO MEDICAL

# JOURNAL & EXAMINER.

VOL. XL.—MAY, 1880.—No. 5.

## Original Lectures.

### ARTICLE I.

AN ADDRESS ON THE NATURE OF THE SCIENCE AND ART OF MEDICINE, AND THEIR RELATIONS TO THE VARIOUS IMPORTANT INTERESTS OF THE PEOPLE. Delivered before the citizens of Lincoln and the members of the Illinois State Medical Society, May 21st, 1879. By N. S. DAVIS, M.D., LL.D., Chicago, Ill.

*Fellow Citizens and Brethren of the State Medical Society:*

In compliance with an earnest request from the Committee of Arrangements, I rise to address you, briefly, on a topic of universal interest and great intrinsic importance. I allude to the Science and Art of Medicine and their relations to the important interests of the whole people. The science of medicine is that field of knowledge which is capable of being used for the prevention, alleviation, and cure of diseases; and consequently for the prolongation of human life. The art of medicine is the direct or personal application of such knowledge, either in the execution of sanitary measures for the prevention of disease, or in the application of remedies at the bed-side of the sick.

The field of knowledge that constitutes the science of medicine does not consist in a fixed system or aggregation of rules based on one or two theoretic principles or dogmas, as is indicated by various words and phrases in popular use; but is made up of items drawn from all the departments of the natural, physical, and mental sciences. Man, the great central object of the physician's study, both in health and disease, is but the highest link in the chain of animate beings, and the study of the structure and functions of his body, constituting human anatomy and physiology, is aided and illuminated at every step, by the facts embraced in the departments of zoology, natural history, chemistry, and physics. As a living being, man, in all stages of his existence, is in intimate relation to, and constantly influenced by the physical elements that surround him.

Therefore we cannot advance one step in the study of the causes of disease and the laws that govern their action, without a knowledge of the earth, the air, the water, the products of vegable and animal growth and decay; or in more technical language, without entering directly into the departments of general science, called geology, meteorology, topography, hydrology, and general chemistry. Materia medica, which embraces a knowledge of the various substances and agencies that can be used for the prevention and treatment of diseases, draws its material alike from the organic and inorganic kingdoms of nature. The domains of mineralogy, chemistry, botany, and psychology, are all laid under contribution for materials of greater or less value, in the prevention, alleviation, and cure of disease. You will not fail to perceive from these few sentences, the truth that medical science does not consist of a few rules derived from certain theoretical dogmas or supposed laws of morbid action, but is rather a vast accumulation of facts and materials gathered from almost every department of human knowledge. They also show two other facts that should be more generally recognized, namely: first, that true medical science is strictly coeval in its origin with that of the various branches of general science; and, second, that its progress and practical application have kept even pace with the progress and development of all other departments of human knowledge. And not only so, but stimulated by the desire for

more facts and agencies capable of practical application in their high calling, the ranks of the medical profession have furnished a large proportion of the most active and successful cultivators of all those branches of science with which medicine stands connected. It is often alleged as an opprobrium or objection to our profession, that its science is unstable and its modes and instruments of practice ever changing. The objectors apparently forget that the same allegation could be made, with equal force, against all the natural or physical sciences, the changes and progress in which, have been so great and rapid as to change the whole aspect of civilization during the last hundred years. That which appears to the uninitiated as instability in our profession, is only the necessary result of progress, and will continue so long as the botanist finds a new plant or shrub; the chemist a new element or combination of elements; the microscopist a new germ, or the professor of physics a new application of the laws of mind or matter. Indeed, it is this progress, *pari passu*, with the advancement in other departments of science, that constitutes the chief glory of modern medicine, and distinguishes it from all the pathies and isms or so-called special schools of medicine both in ancient and modern times. The art of medicine, consisting of efforts to heal the wounded and cure the sick, existed long before there was anything connected with it meriting the name of science. It was in those early days, that so-called schools or special systems of medicine, had their origin. The men, who from official position or superior mental endowments, gained an influence over their fellows, would often invent some theory of disease, accompanied by arbitrary rules of practice, and these being espoused by their followers, became the foundation of a school or system, taking either the name of their inventor or of some prominent feature of the theory itself. Thus the theories and maxims of Hippocrates, Galen, Celsus, Cullen, Hoffman, Brown, Boerhave, Sydenham, and others, each in turn ruled the minds of their followers and constituted the dominant school or system of medicine for the time. But the progress made in the development and verification of all the sciences during the last century, has placed anatomy and physiology, human and comparative; materia medica and chemistry; therapeutics and pathol-

ogy, on so broad a basis of ascertained facts, that mere closet speculations and theoretical dogmas have been well nigh driven from the field of legitimate medicine. The medical investigator of to-day does not spend his time in idle dreams over the question whether all the ills that afflict humanity arise from one or more imaginary humors; whether they all consist in either primary irritation or in primary debility; or whether they are all subject to one universal law of cure; but he recognizes the all important fact that man, the central object of his study, is simply a living, sensitive being, constantly influenced for good or evil, by all the physical and mental conditions that surround him.

He recognizes the equally important fact, that disease, instead of being an entity, a misterious something pervading the human system, or an equally mysterious infliction of the gods, is simply a deviation, in some direction, from the standard of health, in one or more of the functions or structures of the human body. Hence the student and practitioner of rational scientific medicine must take his scalpel, test-glass, microscope, etc., and enter the domain of nature along side of the chemist, the geologist, the botanist, the comparative anatomist, the mathematician, and the philosopher, and learn the causes and nature of diseases by observation and logical induction.

It is the substitution of observed facts in the place of fanciful theories, and the adoption of inductive methods of reasoning in place of closet speculations, that has so rapidly enlarged the boundaries of medical knowledge, and literally given birth, not only to numerous discoveries of the highest importance, but to the whole grand field of sanitary, preventive, or state medicine, on which is founded all those modern sanitary measures that have contributed so much to the health and comfort of the millions who occupy large cities and closely populated districts, and has added materially to the average duration of human life, during the last half century.

Even during the forty-five years that have elapsed since I entered upon the study of medicine, the domain of its science has increased in every direction, taking in on every side entirely new fields, such as organic chemistry, microscopy, histology, physical diagnosis, public hygiene, etc., and its storehouse of

observed facts and logical deductions concerning the causes of diseases, the laws and conditions of their propagation, and consequently the means of their prevention; also, the means for attaining certainty in diagnosis, as well as for alleviating pain and curing disease, have more than doubled. I repeat, then, that medical science is not a system or bundle of metaphysical theories invented by some transcendental philosopher, or a school of speculative philosophy, but it is the selection and appropriation of all those facts and principles from every department of human knowledge that can be made subservient to the grand purpose of preventing or alleviating the ills of our race. Neither is the true physician of to-day, the blind dogmatic follower of a master, whose name he meekly wears upon his collar or nails upon his door-post; but he is preëminently a student of nature and of nature's masterpiece of workmanship—man. He freely draws his facts and materials from every possible source, and uses them in accordance with the dictates of his own well disciplined mind. If he detects the cause of a disease, he endeavors to remove or neutralize it. If his patient is burning with fever and restless with excitement, he endeavors to cool the one and reduce the other. If he is exhausted and feeble he endeavors to sustain him. He gives large doses or small ones, or no doses at all, as his own enlightened judgment may dictate, with none but his own conscience to molest or make him afraid. In a word, the rational, scientific physician, selects his remedies from any and every field where they can be found, and applies them for the prevention and cure of disease in accordance with the principles of common sense, guided by a disciplined and enlightened judgment. Consequently he has no need to attach an *ist*, an *ic*, an *ism*, or a *pathy* to his professional title. It is often said, and the same was repeated by the eloquent member of the legal profession who so cordially welcomed the members of this society to the hospitalities of your goodly city, that the science of medicine has progressed far in advance of the art.

If those who make this assertion will take the trouble to look at the long list of instruments by which we are enabled to explore the most hidden recesses of the human body, not excepting the interior of the delicate organ of vision, by which we not only

detect the existence and location of disease, but the exact stage of its advancement, and the consequent greater certainty and accuracy in the application of remedies; if they will look at the list of anæsthetics for the relief of pain, the nervous and arterial sedatives for allaying nervous restlessness and controlling the circulation, the mechanical appliances for dressing wounds and injuries, preventing or relieving deformities, and a thousand other things that have been added directly to the daily practice of our art, during the last fifty years, they will not fail to acknowledge that the practice of our art in all its aspects, has profited to the fullest extent by every step in the advancement of its science. But I am dwelling too long upon the nature of the science and art of medicine, and must hasten to inquire, what are their relations to the interests of the whole people? The answer to this inquiry has already been clearly indicated, in a general way, by the preceding remarks. It is desirable, however, that an answer should be given more direct and in detail. In doing so, I shall discuss these relations under three aspects, namely: their relations to the individual and family circle; to the public health, and to the public morals. The desire to obtain relief from suffering is an instinct of our nature. And such are our individual relations to the ever varying physical and mental influences with which we are continually in contact, that sooner or later almost every individual and family seeks the aid of the medical man. Hence it is no exaggeration to say, that, at some time, every individual must come in contact with his physician, and that, too, in a relation the most intimate and important. And there is probably no class of men, of equal number, whose relations to individuals and families, afford them opportunity for doing more good or more harm, for contributing more to individual happiness or misery, than the members of the medical profession. I shall not stop here to arouse your full appreciation of this personal relation of every individual to his physician by calling to your mind the anxiety, not to say impatience, with which you wait for his approaching footsteps, when either accident or disease is holding life in jeopardy or torturing you with pain. Neither will I attempt to describe the painful anxiety with which the mother listens to each word and watches each

motion or expression of him into whose care she has committed her sick and tender child. No man or woman in this audience who thinks for one moment, can fail to perceive their own direct personal interest in all that relates to the education, the skill, the intelligence and the integrity of the medical profession. Not one of you know the day or the hour when your dearest earthly interests may not be in the keeping of some one of its members. Is it not, then, your individual duty to lend your influence to all such measures as are calculated to secure to the membess of. that profession the highest degree of intelligence, skill, and virtue?

If the relations of the profession are thus interwoven with the most important and sacred interests of every individual and family, they are no less so in regard to everything pertaining to the public health and public prosperity. We are too apt to think of the physician only in his daily work of administering to the sick, and forget that it is the practical application of the facts and principles of the science he has been cultivating from generation to generation, that has led to all the improvements in the construction and ventilation of dwellings and public buildings, the widening of the streets, the sewering of cities and drainage of country districts, the adoption of measures for preventing the contamination of the water supplies; the removal of filth and the prevention of overcrowding, whether in cities, work-shops, schools, public charities, prisons, or on ships; the sanitary management of armies, and the limitation of the spread of contagious and infectious diseases. Yet all this is true. For while the introduction and spread of the Christian religion has modified the asperities and cruel passions of man, awakened all the kindlier and nobler attributes of his nature, and created within him a *desire* to alleviate the sufferings of those around him, it has been, at every step of progress, the practical application of medical science and skill that has guided every measure really promotive of the public health. And yet the benefits capable of being derived from this source are only in the infancy of their development. With the advanced condition of chemistry and other physical sciences, and the improved appliances and methods for the most minute and searching investigations in all directions, it only requires patience and a cordial co-operation between the

profession and the public, or its representatives in authority, to achieve results for the public good, more important and enduring than any that now grace the pages of medical history. The public often accuse the profession with being too conservative; too much wedded to old doctrines and usages; too slow and reluctant to assent to new truths and additional facts. Your representative in his excellent address of welcome in our first morning session here, re-produced this charge, and it constitutes the common breastwork behind which the advocates of every preposterous theory, from the blunt expressions of stolid ignorance by Samuel Thompson, to the transcendental vagaries of Hahnemann, constantly take refuge.

If we refuse to stultify the dictates of common sense, and set aside all the ascertained laws of mind and matter, for the purpose of persuading ourselves that the potency of any body or substance increases in mathematical ratio to the attenuation of its atoms, and that the true way to remove the symptoms of any one disease is to give an inconceivably small part of something that is supposed to be capable of producing symptoms the nearest possible in likeness to those we wish to remove, we are at once written down as illiberal and bigoted. In a word, if we do not deny the evidence of our senses and fully believe that the sun's rays increase in their power and influence in direct ratio to their scantiness, and abrogate our common sense by consenting that the best way to remove a public nuisance is by creating another as near like it as possible, we are gravely told that the grand discoveries of Harvey, Jenner, Wells, and others, were opposed by their contempories, and therefore (note the logic) we must be bigoted and illiberal. The truth is, that if we, as a profession, err in this matter, it is certainly not in the direction of conservatism or adherance to old doctrines, but in the too great readiness to adopt novelties—to confound coincidences with causes—and to draw important conclusions from insufficient data, or from an incomplete observation of the facts. And a careful examination of the whole history of our profession will show that every important discovery or improvement hitherto made, has been actually adopted before the disappearance of the generation cotemporary with such event, and just as fast as a just regard

for an adequate examination of the nature of the facts on which it rested could be made. It is a natural and most important tendency of the enlightened and disciplined mind, when asked to assent to any given proposition, to demand and carefully scrutinize the facts on which it rests.

It is, indeed, this tendency, that lies at the foundation of all true advancement, in any and every department of human knowledge. Ignorance and want of mental discipline are the prolific parents of credulity and error. It is the duty of the community, therefore, to encourage, and in some directions, afford special aid to the profession in devising and carrying into execution plans for patiently observing and recording facts; pursuing special investigations, for the purpose of deliberately making important practical conclusions. I allude here especially to the enactment and maintenance of well devised laws for enabling the profession to put on record complete statistics of births, deaths, the prevalence of epidemic diseases, the keeping of complete meteorological records, the making of exact topographical surveys, and the institution of carefully devised experimental researches. Many of the questions and problems pertaining to the origin, laws of progress, and consequent means of the prevention of epidemic diseases, in the proper solution of which the highest interests of the people are involved, cannot, from the extent and complex nature of the elements to be considered, be reliably solved without a combination of observers acting in harmony through a series of years. Such combinations, the profession in every part of the country, are not only willing but anxious to make. But to be successful, they need, in some respects, the cordial coöperation, and to some extent, the pecuniary aid of the people through their municipal, State, and perhaps national legislatures.

I am sure that the non-professional part of the audience I now address will give due heed to these suggestions. But I have intimated that our profession bore, in some way, an important relation to the public morals, as well as to the public health.

That every enlightened and influential class of citizens, necessarily exerts more or less influence for good or evil, over the general tone of public morals will be conceded by every thoughtful individual. When we remember, however, that the members

of the medical profession have access to every fireside, and become the special advisers in regard to the habits, modes of life, and mental and physical training, as well as the confidential supervisors of the morbid effects of vice and folly, in all classes of human society, it is easily seen that the influence they do or can exert over public morals is paramount and all-pervading, and carrying with it a responsibility seldom fully appreciated, I fear, by the profession itself. When we remember how large a part of all the vices, crimes, and even diseases of every community, are more or less dependent upon the use of alcoholic drinks and the indulgence of licentious propensities, and how great an influence the firm and united action of the profession could exert if brought to bear in all the intercourse of its members with the community, in regard to these indulgencies, we cannot exagerate the importance of their influence or the extent of their responsibility. But time will not permit me to enlarge upon this part of my theme, neither is it necessary before an audience so intelligent as the one before me.

If I have succeeded in conveying even an imperfect idea of the nature of the science and art of medicine, and their important relations to the highest interests of every civilized community, you will certainly agree with me in the proposition that everything which relates to the education, the organization, and the encouragement of the medical profession, is worthy of your most cordial attention. In conclusion, I must address a few words more directly or exclusively to my brethren of the State Medical Society. From an active intermingling with the profession in all its relations for little less than half a century, I may venture to ask your attention to the following suggestions:

First. By watching the proceedings of all our social organizations, I have been strongly impressed with what has seemed to me a great loss in valuable results from the immense labors of our profession, on account of what may be called fragmentary methods of work. Each individual investigates and writes from the single standpoint of observation occupied by himself; when a large proportion of the questions and problems awaiting solution absolutely require coincident observations in many places, by many individuals, on uniform plans, and through several years of time.

And if a part of the time and attention of every Medical Society was devoted to carefully devising such plans of investigation, and a part of its funds devoted to the procuring of the necessary means and instruments for carrying on the work, requiring regular reports of progress every year, we would make far more rapid progress both in the science and art of our profession. The annual results from such well devised lines of continuous observations and records would generally be comprised in a dozen pages of our transactions, but they would be pages of real additions to our stock of knowledge, worth far more than a volume of conflicting and isolated facts. The American Medical Association, at its recent session, appointed a committee to start work in this direction, and I hope this society will cordially coöperate with the general work of that committee.

Second. I wish to urge upon you, and through you upon the whole profession of the State, the great importance of more completely organizing the profession in every county and district, so that the benefits of social intercourse and combined action shall be far more completely realized.

In union and frequent intercourse there is not only strength, but progress, elevation, enjoyment, friendship and purity. Let us then toil on, shoulder to shoulder, in the great work of preventing, alleviating, and curing the diseases of our fellow men, until the simple name of physician shall be so honored that no man will dare to qualify it by any other adjective than the one applied to the apostle Luke in the days of the Son of Man.

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## Article II.

### Follicular Abscess of the Urethra. A Clinical Lecture, by Prof. Fessenden N. Otis, of New York, delivered at the College of Physicians and Surgeons, New York City.

The patient presented to the class was suffering from gonorrhœa, and besides, called attention to a small hard "lump" situated on the under side of the penis, in the median line and about one inch and a half from the meatus urinarius. In reference to his gonorrhœa, the man stoutly denied recent venereal

contact, although he acknowledged that a previous clap which he had three or four years ago, was of venereal origin. In this connection, Prof. Otis said, "It really makes no difference in your treatment of a gonorrhœa whether your patient says he got it from the seat of a water-closet or not, nor are you, as far as treatment is concerned, to always credit the various stories these patients tell about the origin of their trouble. You have the diseased state before you, and you are to treat it as it presents itself. And yet there may be a gonorrhœa without venereal contact, which behaves exactly like a true gonorrhœa, and may have all the complications. In this particular instance, I do not see any special reason for doubting this man's word when he denies venereal contact. I once knew a case of this false gonorrhœa, which happened in the family of a gentleman who had several children. One of his children had a purulent ophthalmia and it was customary for the gentleman to attend to the necessary manipulations about the eyes himself. Another of his children had some trouble with the penis, and this also the gentleman cared for. It was his custom to attend to the eyes first. After a day or two, however, a purulent discharge appeared from the other child's penis, and this was followed by swelled testicle. It was a case of gonorrhœa produced by infection from the ophthalmia. In fact, it is a common thing to have a gonorrhœa develop itself in a man who has had a stricture for ten or fifteen years, without venereal contact. I have seen men marry who had a slight gleet, and who were permitted to marry by their physicians, who communicated a gonorrhœa to the wife eight or ten days after marriage. I knew of one very fatal case of this kind, where a gentleman, in the first week after marriage, infected his wife's eye with gonorrhœa, which eye she lost, and shortly before the end of the honeymoon, the other also. This man may have a gonorrhœa without venereal contact. It is then a gonorrhœa by mediate and not direct contagion. In the mediate, there is a shorter course. It does not take a long time for the poison of a gonorrhœa, when exposed to the air, to be destroyed, which perhaps explains why so few of us become infected by this mediate contagion, and also why these mediate gonorrhœas run a shorter course.

The man has told us of this tumor on the under side of his penis. It is situated an inch and a quarter from the meatus. I hold it under my finger. It is hard, presents no sign of fluctuation, and gives the man no pain. He tells us that it has been aspirated by his physician, but that no pus was found, so that, whatever it is, it is a neoplasm, but has not a purulent center. It is too far forward for Cowper's glands. He says that at first it was about the size of the head of a small pin, and gradually grew larger. There are several things that must not be overlooked, which may have produced this tumor. "Have you ever had any sores on your penis?" "Yes." "Or lump in your groin?" "Yes." "Or eruption on your body?" "No." "Ever had sores in your mouth, or ulcerated throat?" "No, sir." "Hair come out a good deal?" "Yes, sir." The patient does not seem to have had any eye trouble or headache, or signs of nodes. I am trying to connect this tumor with syphilis—an attack which happened a long time ago, not a recent attack. If this growth is of syphilitic character, it is a gummous tumor. Last winter, you will remember, we had such a case, where the tumor ulcerated and was supposed to be an infecting sore. This growth, however, is not a gummy tumor. There is not the characteristic enlargement of the glands nor other corroborative evidence. What comes next, then? The most likely thing that I know about is a follicular inflammation. The urethra, as you know, is studded with follicles. They are very minute—not much larger than a cambric needle. They may become involved in the inflammation of the urethra, and a minute suppuration occur in the mouth of the follicle, which then may be closed—plugged up. This little molecule of matter burrows along and forms a sinus, making an independent opening, the pus being pushed back into the urethra from the outside. This is more likely to occur within an inch or half an inch from the meatus. The urethral end of the follicle becomes sealed up, and you have a follicular sinus left. A case of this kind was reported by me as far back, I think, as 1870. I remember a case of a gentleman with gleet, who had been treated a long time, but without success. On examining him, I found a little white point, the size of a needle point, an inch behind the meatus. It had been there,

he said, for a long time. Occasionally matter came out. I introduced a fine probe, and after injecting it with indigo, found the stain of indigo on cotton which I had placed in the urethra previously. I then sharpened a hypodermic needle down to a fine point, and introducing it into this little sinus, injected a forty grain solution of the nitrate of silver, and the gentleman had no more trouble. The sinus healed up, and his gleet got well. This little canal had been the seat of a gonorrhœa all the time, and the ordinary injections never reached the inflammation. I have found in cases where the same thing occurred, abscesses formed, which in some instances were absorbed, but in fifteen or twenty cases the matter came to the surface.

Dittel has shown the gravity of these cases where they occur in the deeper portions of the urethra, where, as a result of perforation, independently of stricture, extravasation of urine has occurred, which has proved fatal. This has been traced back to a follicle in the neighborhood of the membranous urethra, the urine being let through in very small quantity at first, and then in larger quantities.

These bunches, then, come from the urethra, following a gonorrhœa. They are not independent, but are the result of a suppuration. Why does this occur? I believe, and have found in every case, that they always occur in a follicle situated *behind a stricture;* that the condition of things which exists behind a stricture is the condition which invites this inflammation. Where there has existed a long standing irritation, it is not wonderful that there should be inflammatory action excited.

Dittel noticed that in all these cases there were *rings* of mucus in the urine. You have rings of mucus because they come from a circular point of irritation, which holds the mucus in the form of a ring. These rings of mucus are one of the signs of stricture, and these rings come from behind a stricture. So whenever you find a sudden swelling in the vicinity of the urethra, examine for stricture. I never fail to find it, and shall find it in this case before you. My own impression is that here we have a stricture which has occurred after an old gonorrhœa, and after a new irritation it has resulted in a neoplasm, an inflammation set up by the continuous irritation, and this is the result of stricture.

Some years ago I called the attention of the profession to the case of a gentleman from a neighboring State who was suffering from an obscure disease of the genito-urinary apparatus. It was supposed to be malignant, because of the ulceration of penis and scrotum. He had had a swelling in the scrotum, which kept increasing very slowly for five years, until it got to be of the size of a child's head at term, very red and insensitive. He did not seem to be troubled at all by it. However, he had an attack of malarial fever, and was reduced very low, and while in this condition the bottom of the scrotum began to slough, and a nasty, dirty abscess appeared, which seemed to be the result of some malignant process. However, it became healthy looking, and finally healed up, and then another abscess formed an inch above, and in ten days opened just as the first, and followed the same course; then another and another, each one higher up, until finally another abscess formed on the side of the penis, which was followed by such inflammation that the foreskin became restricted and gangrenous; three or four openings into the urethra resulted, out of which he made his water. His scrotum had by this time regained its normal size. At last a little abscess occurred at the root of the penis, and was followed by urinary abscess. Then there was talk of removing the penis, and he came to this city. Here there were a number of opinions, but the feeling was that the trouble was lupous.

Then he came under my care. I thought he had a follicular sinus which came from behind a stricture, and on passing a bulbous sound, I found a stricture which warranted me in the conclusion that the urinary infiltration had got into the tissues and had resulted in the formation of a neoplasm in the scrotum. This slowly increased by almost imperceptible degrees, because of the gradual addition of urinary material until when the health became depressed, the tissues could resist no longer, but gave way at the most dependent point. The resulting inflammation closed up the sinus for an inch or two; then the urine settling at that point, gave rise to another abscess, each abscess closing up the line of the tract until the penis was reached. When he came to me, he had been suffering from a terrific amount of reflex irritation, keeping him from sleep, an amount of irritation which I

have never seen except in connection with stricture. His urethra had never received the slightest attention, and on passing a sound, during which I thought he would have had an epileptic convulsion, so sensitive was the urethra, I discovered three strictures, which I divided. The result was that he was relieved from the irritation which had been so disgusting. The relief was *immediate*. The next morning he said to me, "Doctor, for such a night of rest as I passed last night, I would be willing to undergo that operation every day." The abscess healed in ten days, and he became perfectly well.

I have told you this long story to show you how important it is to recognize and properly treat these hard, insensitive bunches. They may give the patient no trouble for the time being, but they will at some time or other. Whenever you find these bunches on the under side of the urethra, get into them as soon as you can. They are usually hard, insensitive, sometimes there are four or five little hard bunches. Sometimes these come from behind a stricture where you could pass a twenty-six or twenty-eight sound. Such a case I saw in consultation once. A young gentleman had one of these swellings in the urethra, and the attending surgeon cut down to the urethra, but not into it. Suddenly the swelling returned, and this time there was no mistake about it; a section was made into the urethra, a stricture divided and the gentleman made a good recovery. Here the follicular departure occurred where you could pass a twenty-six or twenty-seven sound.

Early operation is the rule in these cases. Remember that you are having urine leak into the tissues all the time through these little sinuses; it need not be large in quantity; it may be only enough to produce neoplastic material, but it goes on all the time and if the thing is not looked to and remedied by early operation, it will prove a source of trouble at some time or other, which trouble was clearly *preventable* by seasonable interference.

# Original Communications.

## Article III.

Select Topics of Modern Surgery. Illustrated by Cases from the Hospital Service and Private Practice of Drs. E. W. Lee and Chr. Fenger. Read before the West Chicago Medical Society.

### TUBERCULOSIS OF JOINTS.

Miliary tubercles in the synovial membranes of the joints were first mentioned by the father of modern pathology—Rokitansky. (Pathological Anatomy, Sydenham Society Edition, London, 1850. Vol. III, p. 296.) No attention was paid to the subject, however, for a number of years.

Richard Volkmann, the eminent author in modern surgery on bones and joints, was the first surgeon who published in the leading surgical literature investigations which confirmed Rokitansky's previous observations on tuberculosis of the bones and joints. (Pitha and Billroth, Chirurgie, die Krankheiten der bewegungs Organe. Abschitt V, p. 260.) Volkmann considered tuberculosis of the bones and joints as a rare disease, as is readily seen in his description of the white swelling and the caries of the adjacent bones. He justly pointed out the errors of the previous French authors on the subject, Nélaton and Lebert, who, retaining the original and old doctrine of Laennec, "where cheesy matter is found tubercles pre-existed," had described tuberculosis of bones and joints where no miliary tuberculosis had been demonstrated. Laennec's mistake as to the identity of cheesy matter and tubercle was cleared up by Virchow, who proved that necrosis of any variety of original or newly-formed tissue might

result in its transformation into cheesy matter, and that consequently it was premature to conclude that because we found cheesy matter present, it was due to the presence of previously existing tubercle.

Thus utilizing Virchow's observations, Volkmann was right in repudiating Nélaton's and Lebert's descriptions as false and unfounded, and he was at that time justified in pronouncing it an original discovery, the tuberculosis of the organs in question.

We were not able to make an indisputable diagnosis of miliary tubercle until Langhans, about ten years ago, gave an exact histological description of the young growth in its most minute details. Previously Virchow's description was accepted, viz., that it consisted of a small conglomeration of round lymphoid cells imbedded in a fine stroma of non-vascular connective tissue; and that the fate of these cells was a speedy fatty degeneration, due to lack of blood vessels in the little growth. By the microscopic examination alone we could not make a differential diagnosis between miliary tubercle and the miliary forms of malignant growths (as carcinoma and sarcoma). Also the same difficulty presented itself in the microscopic examination of normal elements, such as the lymphatic follicles of the intestinal tract; the tonsils; solitary follicles from Peyer's patches and from the colon, in which a diagnosis based upon histological grounds could not be made from miliary tubercle. Since Langhan's investigations we have been able to recognize, by aid of the microscope, the miliary tubercle even in places and tissues where none of its well-known characters were visible to the naked eye to call our attention to the true nature of the disease.

The unmistakable anatomical characters of the miliary tubercle thus established enabled Köster (*Ueber fungöse Gelenkentzündung. Virchow's Archiv*, 48, *p.* 49) to make the most remarkable and unexpected discovery that, in the great majority of the cases of so-called white swelling, tumor albus, caries of joints, chronic destructive inflammation of joints, miliary tubercles were found to be the origin of the disease. Thus the same miliary tuberculosis that in the lungs, brain, and uro-genitary organs was recognized as an inevitably fatal disease of variable duration,

made its appearance in the joints in a disease, the prognosis of which as to the life of the patient was not considered grave, provided the proper treatment was resorted to.

It was quite natural that Köster did not believe the facts evident to his own eyes, and expressed the opinion that fungous arthritis (white swelling) in spite of the thousands of miliary tubercles so often found in the various tissues of the affected joint, was a separate disease from the true tuberculosis of the joints, producing or accompanying the fatal and general tuberculosis of the internal organs.

It was now necessary for surgical pathology to engage in the investigation of a question of such vital import, and to sift our knowledge of tuberculosis in general, and specially with reference to its bearing on, and the consequent treatment of this disease in the joints.

The latest investigators, Volkmann, Friedländer, Schüppel, König and ourselves, though not numerous, form but one conclusion, and the results of their investigations all tend to confirm the true tuberculous character of the disease in question and do not admit the distinction of Köster between general tuberculosis and local tuberculosis of joints—the one benignant, the other fatal—but rather seem to foreshadow a change in our inherited views of the necessarily fatal prognosis of every disease originating in, or complicated with the presence of miliary tubercle in the affected tissues.

Numerous future investigations will be required to determine the theoretical as well as the practical importance of the new epoch in the doctrines of tuberculosis. Hoping that surgeons in this country will take their part in the solution of these problems, we will give the pathological anatomy of the disease, and later point out the main question in its relations to general tuberculosis, and its consequent rational treatment as far as our actual standpoint will permit.

The miliary tubercle shown in Fig. 1 is a small round tumor not visible to the naked eye. Its main characteristics are as follows: I. The giant cell reticulum—forming the central part of the growth and containing one or more giant cells. II. The

lymphoid reticulum containing a large number of lymphoid cells, forming the peripheral part of the tubercle and surrounding the former.

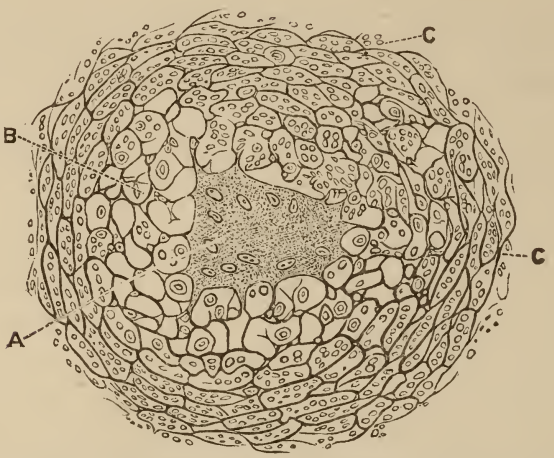


Fig. 1.—Young miliary tubercle in fungous granulations from excision of knee-joint. (Fenger.)

The wound was mainly healed by first intention but in circumscribed areas, œdematous, fungous granulations sprang up, and later broke down in circumscribed abscesses. These masses of soft newly-formed tissue were removed with the sharp spoon and after hardening the same in solution of chromic acid, the tissue shows young miliary tubercles only a few weeks old.

*a*, Giant cell; *b*, Giant cell reticulum with some large epithelial and many small lymphoid cells; *c*, Lymphoid reticulum.

The giant cell is a large, irregular and uniformly finely granulated protoplasmic mass, *a*, Fig. 1, containing a variable number of large oval nuclei, with one or more nucleoli. The nuclei are either scattered irregularly over the cell mass or are arranged in a row along the peripheral part of the cell. From the surface of the giant cell pass out long branched processes, which are continuous with the reticulum of the central portion of the tubercle.

The giant cell reticulum, Fig. 1. *b*, forms a net-work with large round or irregular meshes. Many of the meshes are empty, i. e., do not contain any cells, but are filled up with clear serous fluid. In a few of the meshes are found large epithelial cells with a plainly visible protoplasmic surrounding, and a well defined round or oval nucleus. A large number of the meshes

contain two, three or more small lymphoid cells or nuclei, many of which are highly refracting.

Outside of this giant cell reticulum we find the peripheral part of the tubercle consisting of the (*c*) lymphoid reticulum or small celled tissue of adenoid-like structure. The meshes of this reticulum are narrow, long, oval, or spindle-shaped spaces, their long diameter being perpendicular to the radius from the center of the tumor. They are filled entirely with innumerable small, round more or less refracting cells or nuclei.

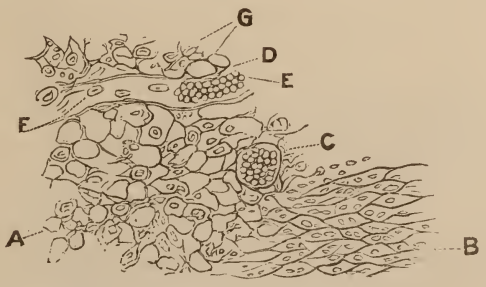


Fig. 2.—Young adenoid tissue surrounding the miliary tubercles—from case of excision of knee-joint: *a*, Tissue with large round meshes; *b*, Tissue with oval, narrow meshes; *c*, Transverse section of a small vein filled with blood corpuscles; *d*, Longitudinal cut of a small vein at *e*, filled with blood, at *f* empty, showing the nuclei of the endothelial cells; *g*, The outer wall of the vessel forming the reticulum of the interstitial net-work (frame work.)

The surrounding tissue, of recent growth in which the tubercles are imbedded, has, in its young state, invariably all the characteristics of the so-called adenoid or lymphoid structure, (as is shown in Fig. 2.) It derives its name from its similarity in structure to the lymph-glands, or the tonsils, or the adenoid tissue as we find it along the whole of the intestinal tract, or the adenoid vegtations from the naso-pharyngeal cavity. It consists of a fine connective tissue net-work with round or oval meshes, filled with lymphoid cells and nuclei.

It contains numerous blood vessels with thin walls, the external coats of which are transformed into or take part in the formation of the branches of the reticulum. This adenoid-like structure of the connective tissue around the tubercles we found in all cases. [The same structure may be found in young con-

nective tissue, the formation of which plays no part in the growth of tubercle.] It grows out between the bundles of the normal tissues—fibrous, muscular, etc.—creeps along the vessels into the fatty tissue and causes thus the thickening of the soft structures of the joints, as we so often find it in the white swelling, where the capsule is transformed into a grayish, white, firm, inelastic, fibrous mass, varying from one to two lines to half an inch or more in thickness.

A transverse section through such a thickened capsule is shown in Fig. 3.

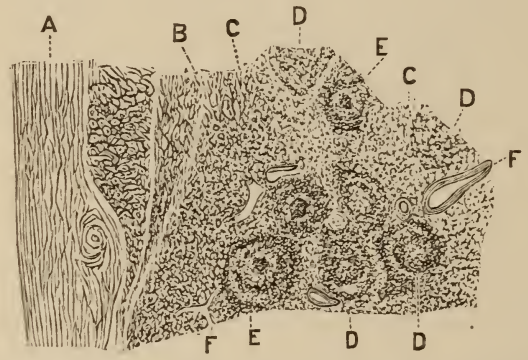


FIG. 3.—Thickened capsule of knee joint; case of resection of Dr. Fenger: *a*, Outer layer of normal fibrous tissue; *b*, Bundles of fibrous tissue inlaid with lymphoid tissue; *c*, Inner layer of adenoid tissue containing numerous tubercles; *d*, Tubercles without giant cells; *e*, Tubercles with giant cells; *f*, Vessels.

The following are the microscopic features: *a*, An outer layer of normal fibrillar connective tissue of the fibrous capsule of the knee joint. Inside of this, at *b*, two obliquely-cut bundles of fibrous tissue, partially transformed into adenomatoid tissue. Finally the thickest inner layer, *c*, consists of adenomatoid tissue, with a large number of disseminated miliary tubercles, some of which contain a large giant cell, *e*, *e*, while others, *d*, *d*, *d*, have a center consisting of the giant cell reticulum without giant cells, but all of them are surrounded by a darker ring of the lymphoid reticulum.

The metamorphoses and alternate fate of the miliary tubercle, as we learn from the most recent authors, are as follows: After an, as yet, undetermined term of existence, either simple atro-

phy or fatty degeneration commences in the center of the tubercle, where first the cellular elements and later the interstitial tissue become trasformed, partly into irregularly-shaped, soft corpuscles—the so-called tubercular corpuscles—and partly into a finely granulated fatty detritus.

In rare instances simple atrophy may occur in the cellular elements alone, meanwhile the reticulum gets thickened and the tubercle becomes transformed into a hard, horny mass. This transformation is considered a cornification, and is only rarely observed.

The partially atrophied and fatty degenerated tubercle will further undergo one of the three following metamorphoses:

Resorption may take place, especially where the tubercles are widespread and isolated. Wagner (Manual of General Pathology; translation; New York, 1876) regards this as a most rare occurrence.

Calcification is more frequent, and means transformation of the fatty detritus into cheesy matter, intermixed with chalky masses, finally encapsulated, viz.: surrounded by a capsule of dense cicatricial connective tissue.

Softening and liquefaction is justly considered the most important change, because it is most often accompanied by suppurative inflammation in the surrounding tissue. If the seat of the turbercle is on the surface—mucus membrane, skin, etc.—ulcers are formed, and if they are located in the interior of the organs, tuberculous cavities result, and tuberculous abcesses form and often become the starting point for suppurative processes, *i. e.*, the formation of abcesses around the tuberculous foci.

Wagner only expresses the general opinion of the profession when he says that the last named form of fatal transformation of the tubercles is of most frequent occurrence. In the remainder of this paper it will be seen that we do not quite agree with him in this conclusion. We consider, and are obliged to state, that as far as the tuberculosis of joints is concerned, absorption of the tubercles is of frequent occurrence.

### A.—PRIMARY OSTEO-TUBERCULOSIS IN THE EPIPHYSES NEAR THE ARTICULAR SURFACE OF THE BONES.

The tuberculosis of the joints originates, according to Kocher and Volkmann, in the great majority of cases, not in the capsule

or any other of the soft parts, but in the spongy structure of the epiphyseal extremities constituting the joint, *i. e.*, it commences outside the joint as a tuberculous caries, or rather as a local miliary tuberculosis of the epiphyses.

A typical specimen illustrating this fact is shown in Fig. 4.

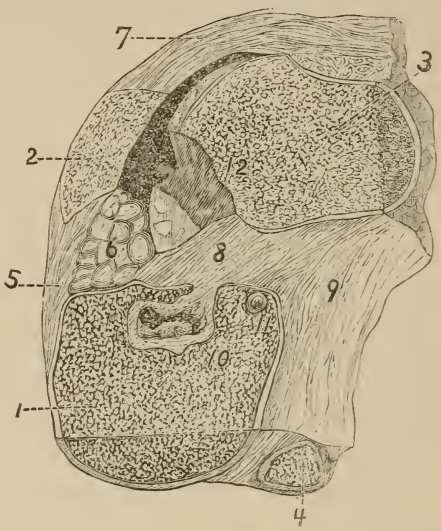


FIG. 4.—Longitudinal cut of right knee-joint: 1. Upper extremity of the tibia. 2. The patella. 3. The lower extremity of the femur. 4. The fibula. 5. The ligamentum patellæ (inferior), with 6. Its subjacent adipose tissue. 7. Ligamentum patellæ (superior) *i. e.*, the tendon of the quadriceps femoris. 8. The ligamentæ cruciatæ. 9. Posterior wall of the capsule with its fibrous ligaments. 10. Large tuberculous cavity in the upper end of the tibia, lined with a thick grayish membrane studded with miliary tubercles, and filled with cheesy matter. At the posterior end of the roof is an opening through which the cavity communicates with the joint. 11. A smaller round tuberculous cavity lined with a tuberculous membrane and filled with cheesy matter. 12. A large loss of substance (carious ulcer) in the external condyle of the femur with several smaller and one large, loose spicula of osseous tissue (sequestra).

It represents a longitudinal cut through the knee-joint removed at a post-mortem examination of a patient at the Cook County Hospital.

A short résumé of the records gives the following facts taken from the history published by Dr. Murphy, of Cook County Hospital, in the *Chicago Medical Gazette :*

"*Primary osteo-tuberculosis of the superior extremity of the*

*right tibia, tuberculous arthritis of right knee-joint. Secondary tuberculosis of inguinal glands, bladder, ureters, right kidney, and peritoneal cavity, commencing chronic tuberculosis of lungs, "pleuritis pyœmica."*

Married woman æt. twenty; family history good as to tuberculosis; an aunt died of cancer of the mamma. Five years ago she began to have some dull pain in the right knee-joint; there was occasionally some swelling of the joint, which would last but a few days and then entirely subside, but the pain was a constant annoyance and seemed to bear no relation to the swelling of the joint. The pain was exaggerated by long standing or walking, but sudden pressure caused her no inconvenience whatever.

Eight months ago, just previous to urinary trouble from the commencing tuberculosis of the bladder, the parts about the joint became much more swollen, the knee was flexed at a right angle from which position motion caused severe pain. It thus continued very bad for about two months and then subsided gradually, but remained flexed, though to a less degree. There was no anchylosis for it allowed quite a latitude of motion. On moving her from her home to the hospital the knee was considerably shaken, which caused an acute swelling of the soft parts. On admission the right knee was found flexed at a right angle, from which position she could only move it to a slight degree. The entire articulation is considerably swollen and tender. The swelling appears to be partly due to a distension of the synovial sac, but also to a general infiltration of the soft tissues of the joint.

*There are no sinuses leading into the joint and no scars resulting from previous abscesses.*

For the remainder of the history we shall only state that for the last eight months she had suffered from urinary trouble and pains in the hypogastrium, signs of a chronic, steadily progressing cystitis and pelvic cellulitis, accompanied by loss of strength, anæmia, and latterly by fever.

The diagnosis was considered to be a tuberculosis of the organs before mentioned; the prognosis fatal, and death resulted twenty days after admission. The post mortem examination revealed the following:

The right lung contains numerous nodules consisting of peri-

bronchitic granules; in the lower lobe a sub-pleural abscess about the size of an acorn containing sanious pus. The left lung contains peribronchitic granules but no abscesses.

The entire wall of the peritoneal cavity is studded with miliary tubercles; the mesenteric glands greatly enlarged and mostly degenerated into cheesy matter.

*The inguinal glands on the right side enlarged, softened and broken down into cheesy abscesses.*

In the retro-peritoneal tissue above the right kidney is a large abscess filled with fluid pus, the walls of which are irregular, ulcerated, and contain numerous miliary tubercles.

The right kidney is filled with miliary and conglomerated tubercles which in some places are degenerated into large cheesy masses. In the pelvis of the kidney, the walls of the enlarged ureter and the bladder, are found large confluent tuberculous ulcers leaving only small islands of recognizable mucous membrane on their walls. The connective tissue in the pelvis minor is infiltrated with tubercles and cheesy matter, in the midst of which are found two tubercular abscesses, one of which opens into the bladder, and the other into the vagina.

The right knee joint is bent almost at right angles, and a little motion is obtainable. The circumference of the joint is somewhat enlarged. The skin covering it is natural. There are no sinuses nor cicatrices and no abcesses around the joint.

The cavity of the joint is filled with whitish, dry, cheesy matter of the consistence of putty. After the removal of this matter we find the capsule a little thickened and rigid, its inner surface being slightly uneven and velvety, but no miliary tubercles visible.

The cartilaginous covering of the articular ends of the bones is mostly destroyed and only small, irregular islands of cartilage left on the denuded and roughened osseous surfaces. In the head of the tibia, close to the joint, is seen a cavity (10) occupying the spongy portion and measuring 1.5 centimeters, in antero-posterior diameter 1 centimeter from above down and 2 centimeters laterally. This cavity is lined with a soft, grayish membrane 1 to 2 millimeters in thickness. This membrane consists of adenoid tissue, in which are imbedded thousands of miliary tubercles.

The cavity is filled with whitish, cheesy matter, similar to the cheesy matter found within the joint. Microscopically, this cheesy matter is seen to consist of a finely-granulated, fatty mass, with no recognizable cellular elements in it. This tuberculous cavity is in communication with the joint in two places; the one at its upper posterior part, as shown in the figure; the other at the right part of the roof, through the external articular surface of the tibia. Near the upper posterior margin of the tibia (at 11) is a small, round cavity of tubercular origin near the surface of the bone, but not as yet communicating with the joint. In the external condyle of the femur (12) we find a deep transverse, loss of substance or superficial erosion or carious ulcer, measuring 3 centimeters in length, 1 centimeter in width, and 4–5 milimeters in depth. Its walls are irregular and here and there are variable sized sequestra.

The local osteo-tuberculosis in the epiphyses, as illustrated in the above case, is, according to R. Volkmann, the eminent surgeon and pathologist and author of an excellent monograph on the diseases in question,* in the great majority of cases, the starting point of the chronic fungous arthritides, the scrofulous arthritides, the white swelling of the joints.

The tuberculous osteitis or osteo-myelitis in the epiphyses may be circumscribed or diffuse. Most generally it is local.

Through cheesy degeneration of the tubercles, that fill the place of the absorbed osseous tissue, there is formed a cavity filled with cheesy matter and lined with a membrane composed of living adenoid tissue and tubercles. In a number of cases there will be found variable sized pieces of dead bone or sequestra in those cavities for the following reasons: *First*, the tuberculous osteo-myelitis cuts off an island of unabsorbed osseous tissue from its nutritive supply and finally isolates it as a loose sequestrum. *Second*, a sudden cheesy degeneration and consequent death takes place in part of the tubercular, infiltrated, spongy osseous tissue before the absorption of the osseous substance can take place. The portion thus affected must therefore at a later

*Sammlung Klinischer Vorträge, No. 168–169, 1879. Ueber den Character und die Bedeutung der fungösen Gelenkentzündungen.

period, form a loose sequestrum surrounded by cheesy matter, and the living tuberculo-adenoid membrane.

The cancellous structure surrounding the tuberculous cavity is in most cases healthy, the miliary tubercles not spreading far into the medullary spaces, but rather keep together in one circumscribed tumor as we find it in the conglomerated tubercles of the brain where the thin grayish membrane of miliary tubercles that circumscribes the central yellow cheesy mass is surrounded by healthy brain tissue.

This local characteristic of the tuberculosis is a fortunate peculiarity inasmuch as it enables us to remove the whole of the diseased part. It will be sufficient to empty the cavity and scrape out its lining membrane with the curette, or sharp spoon, or concave chisel, or gouge, for the complete eradication of the tubercles of the affected locality. We are thus often able to stop the progress of the disease with a relatively insignificant loss of substance of the epiphysis in question. Those primary local tuberculous foci are in some cases single, in others multiple, but the number is generally limited. Usually only one of the bones of the joint is the seat of them but they may be found simultaneously in two or all of the bones constituting the joint. Their place of election is close to the articular surface, immediately beneath the articular cartilage, and in children, in the neighborhood of the epiphyseal cartilage. A small subchondral primary tubercular focus may disappear in the later destruction of the joint, and thus we are unable to trace, at operation or autopsy, the tuberculous arthritis to its very origin.

There are found, however, and fortunately rarely, cases where the tuberculosis is not thus localized, but where the eruption of miliary tubercles spreads diffusely over the epiphyses resulting in an equally diffuse cheesy degeneration. In such cases the removal of the bone must be much more extensive, thus increasing the danger of operative interferance. Volkmann's prognosis in these cases is grave as regards the danger of general tuberculosis, though not necessarily fatal.

In another class of cases, still more rare, a diffuse caseous degeneration takes place throughout the whole of the epiphysis where one or more local tuberclous foci are seated, and on section

of the spongy osseous tissue we find it yellow, dry and bloodless from cheesy degeneration, and dying as a result of the diffuse osteo-myelitis of the epiphysis. In these cases removal of the entire bone is demanded.

The local tuberculosis or cavity will slowly grow larger and larger, till finally it will perforate to the surface of the bone. Generally the disease is not revealed until this event occurs. Symptoms during the stage of development of the cavity but previous to its perforation, are conspicuous by their absence. There is, as a rule, no pain or disturbance whatever; but as soon as the surface of the bone is reached the adjoining organs or super-imposed tissues become poisoned by contact with the cheesy matter and inflammation results. Naturally we might infer that it is a matter of great importance whether the cavity opens within the joint or reaches the bony surface outside the same, and would modify greatly our prognosis as to the result of the disease and the fate of the patient.

If the tuberculous cavity opens outside the joint, the integrity of the latter will remain unimpaired, and extra-articular abscesses will form. Sooner or later these abscesses will reach the surface of the part by natural processes or be evacuated by surgical aid. They contain either normal pus or a thin, slimy or scrofulous pus.

The wall of the abscess is lined with a grayish, loosely-adherent membrane, and in structure it consists of adenoid tissue, studded with miliary and conglomerated tubercles, often visible to the naked eye as small, round, grayish, white nodules, similar to the tuberculosis of the large serous cavities—peritoneum and pleura—with which we are all familiar.

The fistulous sinuses resulting from these abscesses have little tendency to close up, partly because they communicate with the tuberculous cavity in the bone, and partly on account of the tubercles lining their walls.

The diagnosis of the tuberculous character of the disease can readily be determined by the removal of a portion of the wall by aid of a curette and examination of the tissue under the microscope.

At this stage of the peri-articular tuberculosis, proper treat-

ment will, in some cases, arrest further progress of the disease and save the endangered joint. The plan of the operation is obvious. We must cut through the fistulous tract down to the surface of the bone, dilate the osseous opening with chisel or gouge, lay open the tuberculous cavity, remove its contained cheesy matter, and sequestra, and scrape or dig away the whole of the tuberculous, infiltrated tissues.

Cases in which the neighboring joint has been saved have been reported by Kocher after the foregoing operation was performed. (Zur Prophylaxis der fungösen Gelenkentzündnng—[Volkmann Klinische Vorträge, No. 102.)

### B.—THE TUBERCULOUS ARTHRITIS.

#### I.—*The Consecutive or Secondary Tuberculous Synovitis.*

When the osteo-tuberculous cavity opens into and empties part of its cheesy, infectious contents into the joint, a tuberculous inflammation results. In the great majority of cases this arthritis assumes, from the very beginning, the same chronic character as did the tuberculous caries of the epiphysis. This chronic, slowly-developing fungus arthritis has been termed pannous arthritis, from its anatomical resemblance to pannous inflammations of the cornea. The synovial membrane becomes injected and swollen, the articular cartilages replaced by vascularized granulations or connective tissue. In the cavity of the joint may be found an augmented amount of synovial fluid, somewhat whitish from admixture with lymphoid elements. Slight pain, impaired motion, moderate swelling, no palpable signs of effusion within the joint, and sometimes slight, muscular contractions are the symptoms met with in this condition.

This pannous arthritis may set in before caseous matter is effused into the joint (Volkmann and Kocher) from irritation produced by the tuberculous inflammation in such close proximity to the articular surfaces. As the pannous arthritis has a tendency to obliterate the cavity of the joint and to terminate in a more or less complete false anchylosis, it often happens, therefore, that the caseous matter opens into an already partially obliterated synovial cavity. If this be the case the reactionary inflamma-

tion will be far less vehement than if the cheesy matter entered a normal-sized and healthy synovial cavity.

The foregoing reasons account for the well-known fact that the fungous arthritis sometimes sets in with the symptoms of an acute inflammation; generally, however, it has a chronic character from the start. This chronicity may be interrupted by acute but transient exacerbations, to be accounted for by the cheesy matter as above stated.

The most serious consequence of this tuberculous arthritis is its destructive influence on the integrity of the affected joint. The articular cartilage or the periosteum disappears or is transformed into miliary tuberculous adenoid tissue, and the epiphyseal arthritis of the bones becomes destroyed by a carious tuberculous osteitis, extending from the surface to the deeper tissues of the bone.

The secondary tuberculous destruction of the epiphysis is sometimes uniformally distributed over the entire articular surface, whilst in other cases it is localized and forms shallow excavations. A specimen representing the latter condition is shown in Fig. 5.

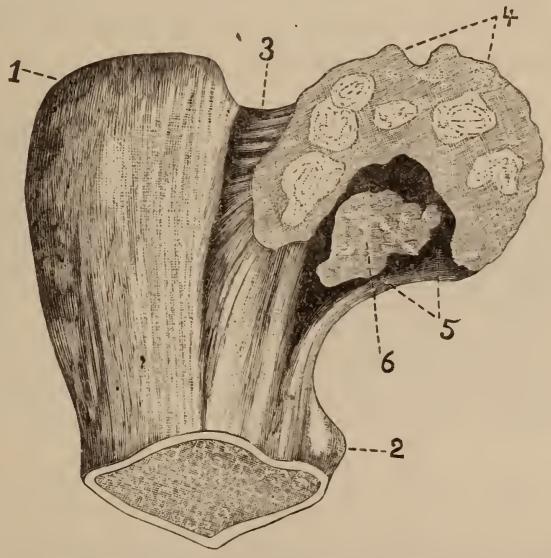


Fig. 5.—Upper extremity of the right femur removed by excision by Dr. E. W. Lee, from a six year old girl suffering from morbus coxarius with

a large anterior abscess. (The details of this successful operation will be published in another paper.) 1. The great trochanter. 2. The lesser trochanter. 3. The neck of the fumur. 4. The head of the femur reduced to one-third its normal size, with irregular circumference and denuded roughened surface. 5. Tuberculous cavity in the head and neck, partially filled with 6. A mass of reddish-gray soft tissue—fungoid granulations—consisting of adenoid tissue with miliary tubercles.

This upper extremity of the right femur removed by excision by Dr. E. W. Lee, shows, besides considerable superficial destruction of the head, (4) a shallow cavity (5) two centimeters long, one and a half centimeters broad, and half a centimeter in depth, situated in the inferior portion of the neck and also in the head of the bone. This cavity is mainly filled with a mass of reddish-gray soft tissue—(6) fungous granulations—in which fine yellow specks or points are seen, but no gray miliary nodules are visible to the naked eye. The miscroscopic examination of this tissue shows it to consist of adenoid tissue and miliary tubercles.

In this secondary, diffuse and superficial tuberculosis of the bones—tuberculous periostitis, osteitis and caries—the osseous tissue is transformed into masses of reddish-gray soft tissue, viz., fungous granulations—hence we find in this tissue, situated between the adenoid tissue and the tubercles, spiculæ of bone undergoing the process of absorption.

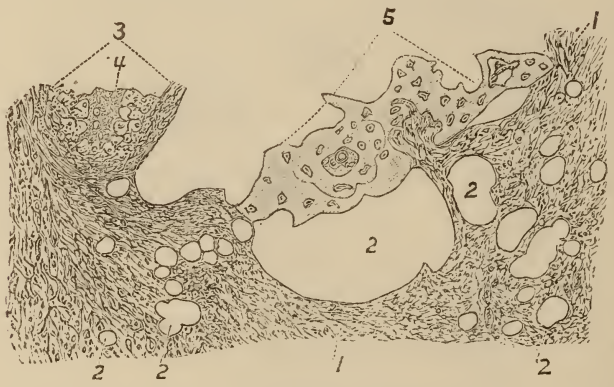


FIG. 6.—Miliary tuberculous fungous granulations from elbow joint. Excision by Dr. Lee for chronic fungous arthritis with impending anchylosis. No periarticular abscesses nor fistulæ. Old primary osteo-tuberculous cavity in the head of the radius. Secondary superficial tuberculosis of the olecranon and the lower extremity of the humerus. 1. Young connective

tissue of mainly adenoid character, with 2. Smaller and larger lymph spaces. 3. Half of miliary tubercle with the 4. Giant cell in the center. 5. Spiculum of osseous tissue.

In Fig. 6 is shown a section of fungous granulations covering the atrophied anterior surface of the lower extremity of the humerus. This was removed by excision of the elbow joint in a case of chronic fungous arthritis in Dr. Lee's practice. We find a young connective tissue, rich in cells and mainly adenoid in character (1) containing a number of variable-sized round empty spaces, with serous fluid filling the large lymph spaces. 2, 2, 2. At 3 is a miliary tubercle with a giant cell (4) in its center, and at 5 is an irregular island of osseous tissue (spiculum) with bone corpuscles surrounded partly by lymph spaces and partly by adenoid tissue.

This little spiculum of osseous tissue is part of the old bone in the stage of absorption, because in no part of its surface is found either osteoblasts or connective tissue—corpuscles or cells undergoing the process of transformation into bone corpuscles.

The effect of cheesy matter from a tuberculous cavity upon the healthy synovial cavity has been demonstrated by the experiments of Prof. Hüter* of Greifswald.

He made an emulsion of tuberculous sputa from consumptive patients, and then injected one-third to three-quarters of the contents of a common subcutaneous syringe into the cavities of the knee and ankle joints of five dogs. After eight to fourteen days swelling commenced in the joint, abscesses reached the surface and left sinuous openings, discharging a sero-purulent fluid. The animals became emaciated, and diarrhœa set in. One of the dogs died of acute general miliary tuberculosis. When the inflammation of the joint subsided, the general condition of the animals improved, he also noticed. In the joints of the animals which he killed was constantly found a condition of fungous arthritis in different stages. The fungous granulations of such a joint were emulsionized with water and injected into the peritoneal cavity in two healthy dogs. Four weeks later the animals

* Die Experimentelle Erzeugung der Synovitis granulosa an Hunde, und die Beziehungen dieser Gelenkentzündung zur Tuberculose, Deutsche Zeitschrift für Chirurgie Bd. XI Heft 3 und 4, Centralblatt für Chirurgie, No. 43, 1879.

were killed, and he found swelling of the retro-peritoneal glands, desquamative pneumonia in the lungs—consumption—miliary tubercles in the diaphragm and the pleural cavities. He therefore concluded that the fungous arthritis—the synovitis granulosa—is a tuberculous disease.

## II. THE PRIMARY TUBERCULOUS SYNOVITIS.

A priori there is no reason why the tuberculosis should not commence in the synovial membrane of a joint as well as in the adjoining bones. But a priori theories or reasonings are of little account when compared with observations based upon facts. The numerous authentic cases upon which Volkmann founded his monograph made him enunciate the opinion that the synovial tuberculosis in the great majority of cases is secondary—caused by a communication being established between the primary osteo-tuberculous cavity and the joint. We do not doubt but that his statement is in strict accord with the facts observed by him.

Volkmann admits that primary synovial tuberculosis is a rare event, and thus far we agree with him; but when he further states that primary synovial tuberculosis occurs rarely save in adults, and calls for a much more serious prognosis than the common secondary tuberculous arthritis, we beg leave to differ with him.

In one of our cases, where, in tuberculosis of the knee-joint, excision was performed by Dr. Fenger, there was no primary osteo-tubercular focus to be found in any part of the bones.

In the hip-joint represented in Fig. 5, we feel inclined to regard the tuberculosis of the neck and head, of the femur as secondary on account of the shallowness of the cavity, but we admit that our opinion here might be disputed. An important step toward the solution of this problem has been made by the recent experiments of Shüller (Centralblatt für Chirurgie, 1878, No. 43 and 1879, No. 19, also Archiv. für Experimenttelle, Pathologie and Pharmakologie, Bd. 11, Heft. 1 and 2, 1879; also Allgemeine medicinische Zentralzeitung, No. 82, 83, 84, 1879.)

The author being aware of the clinical fact that a slight trauma was often mentioned as a common factor in the etiology of the scrofulous, viz., tuberculous inflammations of the joints,

desired to settle the following queries: Why can such an unimportant traumatism—in children, almost of daily occurrence—produce, in a very limited number of individuals, such serious consequences; and what are the predisposing morbid conditions in the organism of the individual subject to such grave results? Clinical observations have long since pointed out the coincidence, to say the least, between fungous arthritis, scrofulosis and tuberculosis. Villemin had produced tuberculosis by inoculation, Tappeiner by inhalation of tuberculous and scrofulous cheesy matter. Schüppel had found miliary tubercles in the caseous, so-called scrofulous lymph glands. The latter sometimes suppurate and periglandular abscesses form; these as well as the chronic, cold or scrofulous abscesses, contain in the lining membrane of the wall thousands of miliary tubercles. (Volkmann.) Scrofulous ulcers of the skin so common in children, grave cases of scrofulous ozæna, a number of anal fistulæ, obstinate ulcers of the soft palate and the pharynx in children and young individuals, where the malignancy of the ulcers was attributed to hereditary syphilis or their lupoid character, show, according to Volkmann's investigations, that miliary tubercles are the cause of their local destructive tendency.

The identity of scrofulosis and tuberculosis was slowly approaching the condition of an established fact. The above named investigations caused Schüller to enter the experimental field relating to fungous inflammations of the joints.

Rabbits and dogs were infected with tuberculosis, viz., scrofulosis in the following ways:

*a*. Tuberculous sputa from consumptive patients, or an emulsion of cheesy matter and miliary tuberculous tissue from human lungs was injected by means of an hypodermic syringe, the point of which was pushed through the thoracic walls.

*b*. The same kind of emulsion was injected into the trachea through the wound of a preceding tracheotomy.

*c*. By means of an atomizer the same emulsion was thrown into a closed space containing animals.

Besides the emulsion of tuberculous sputa and caseous and tuberculous tissue from the lungs, the author used for the infection of the animals a fluid containing secondary generations of

micrococci, contained in the above-named material. The cultivation of these micrococci was produced in the following way: Miliary tuberculous lung tissue or cheesy matter from scrofulous glands was ground in a mortar in Bergmann's fluid for cultivating bacteria, thus forming an emulsion. Bergmann's fluid consists of 100 cubic centimeters of distilled water; 10 grams of rock candy; 1 gram of tartrate of ammonia, and ½ gram of phosphate of potassium.

The emulsion is then filtered, and of this milky filtrate from one to three drops are put into cleansed glasses, containing Bergmann's fluid. The glass is kept at a temperature of 30° C., and after three to four days the fluid becomes cloudy or milky from generated micrococci, and the so-called first culture or generation is completed. One to three drops of this is mixed in another glass of Bergmann's fluid, and results in three to four days in the second culture or generation. In the same way a third generation is produced from the second.

The fluid contains a multitude of small, round bacteriæ in very rapid motion. At 450 diameters they are to be seen as small round points. At 800 to 1200 diameters, and colored with methyl-violet they can be distinctly seen as spheroidal bodies, isolated or in groups of two or three. The second generation contained only these bacteria in a fluid free from the cells or particles of the original tubercles or cheesy matter. This fluid was then used for injection into the lungs or for inhalation with the same effect as the original emulsion of tuberculous tissue and cheesy matter. Rabbits and dogs were used for the experiments. The dogs and the larger and more powerful rabbits tolerated the operation readily and the tracheotomy wound healed up without accident. The infected animals after some time would commence to lose weight and become emaciated, and in spite of their good appetite would die in the course of three to ten weeks from tuberculosis of the lungs and other internal organs.

Traumatic lesions were now produced upon the joints of the infected animals. In the great majority of them the result was a chronic fungous arthritis, a tumor albus, a pannous arthritis.

The synovial membrane became thickened and covered with granulations (these granulations will also cover the peripheral por-

tions of the cartilages), the cartilages thickened and became opaque, vascular, and finally transformed into the same kind of granulation tissue as found on the synovial membrane. The epiphyses of the joint became thickened and osteo-porotic, but no central carious cavity filled with cheesy matter was found in them. Towards the surface, however, in the enlarged medullary spaces was found an infiltration of lymphoid cells and consequent fatty degeneration. In and around those spaces miliary tubercles were constantly found. In the granulation tissue, in and on the synovial membrane miliary tubercles were found now and then but fewer in number and less frequently than in the medullary osseous tissue. Thus it was proved that a fungous arthritis of tuberculous character, a tuberculous synovitis commencing in the synovial membrane, was the result of slight traumatisms in animals infected with the tuberculous poison.

Deciding experiments were made in which the same traumatisms to the joints of non-infected animals were produced, and were not followed by any such chronic inflammation. A slight serous effusion or even extravasation of blood in and around the joint became absorbed in a few days, leaving the joint as healthy and movable as before.

The above experiments, together with the observed clinical cases where no primary local, osteo-tuberculosis is found after operation, tend to justify the opinion that a *primary tuberculous synovitis exists, not as a rare and grave disease as Volkman believed, but as one of the common forms of fungous arthritis*, that we so frequently meet with, resulting from slight traumatisms to the joints in scrofulous, *i. e.*, tuberculous individuals—mostly in children.

This primary tuberculous synovitis can further be a local tuberculosis as well as the osteo-tuberculosis of the epiphyses, as we have seen in our case of excision of the knee-joint, where the recovery is complete and the patient is growing stronger and gaining in weight, and not exhibiting the faintest signs of tuberculosis in any other organs of the body.

The relative frequency of the primary and secondary tuberculous arthritis must remain an open question at present, and will have to be determined by further clinical observations.

The practical bearing of the question is this: If the tuberculous arthritis, as Volkmann believes, is almost always secondary to a primary osteo-tuberculosis, we might hope in a large number of cases to be able to destroy the disease by local treatment previous to to the extension of the disease to the joint. Successful cases of this kind are reported by Kocher and Volkmann, but up to a recent date their number was only small, and we must regard them as exceptional cases.

COURSE AND TERMINATIONS OF THE TUBERCULOUS ARTHRITIS.

The object of this paper being only, or mainly, to elucidate and demonstrate the pathology of tuberculosis of the joints, we will have to postpone the discussion of the details of the course, viz., symptoms, complications, etc., until a future occasion when symptoms, treatment and its results will be illustrated by authentic cases of the disease. In this paper, however, we shall only point out some of the main indications on general principles.

At present, we know not what proportion of the cases of tumor albus, white swellings, or fungous arthritides are complicated with or dependent upon a miliary tuberculosis of the affected joints. Future investigations will have to solve the question: Are tubercles present in every case of fungous arthritis, or, in other words, is every case of funguous arthritis a local tuberculosis; or, still further, does there exist two distinct classes of of fungous arthritis, one tuberculous, and the other non-tubercular? From a pathological point of view this question is of vital importance as far as the prognosis is concerned, because a non-tubercular arthritis would be a benignant disease, not for the joint, but for the life of the patient, as there would be no danger of a general tuberculosis resulting therefrom. The investigations of Volkmann and Friedländer during the last years seem to prove that the great majority of the fungous arthritides are of a true miliary tuberculous nature. If this be the true state of things we shall have to change our inherited views of the malignancy of the miliary tuberculosis, and we shall have to admit that a local tuberculosis of a bone or a joint is so far benignant that it may terminate in a relative recovery, viz., in anchylosis of the joint without the necessity of involving a fatal general tuberculosis of

the lungs or any other system of organs necessary for the continuation of life.

It is now beyond doubt that a number of tuberculous arthritides terminate in what we used to call recovery, that is, a more or less complete fibrous or osseous anchylosis of the affected joint. It is further possible that this recovery may be a complete one as to the tuberculosis, viz., that all the tubercles in the fungous arthritis have disappeared, and the tissues of the anchylosis consist of fibrous and osseous tissue apt to persist for an indefinite period of years without any danger, either from future local inflammation or from general tuberculosis.

A very interesting point in Schüller's experiments we wish to mention in connection with this side of question. Consequent to the experiments with the bacteriæ developed in Bergmann's fluid, Schüller raised the question whether or not antidotes of anti-bacteriac remedies would not show a beneficial influence upon the tuberculous infected animals. He pretends to have found that inhalations of a five per cent. watery solution of benzoate of soda thrown into the respiratory tract by means of atomizers was effective, sometimes curing and always ameliorating the condition of the tuberculosed animals. Under this treatment they gained in weight, the tuberculous arthritis got better and, if not too far gone, disappeared entirely.

How common this complete recovery is we do not know at present. But we shall here point out and demonstrate the fact that the recovery from a tuberculous arthritis may seem complete for years and still hide the germ of a finally fatal tuberculosis.

Fig. 7 shows an anchylosed hip joint, removed at a post mortem examination of a man about thirty-five years old, who died in the Cook County Hospital from chronic pulmonary tuberculosis, *i. e.*, consumption. The patient, when about fifteen years old, had suffered from morbus coxarius which had terminated in an anchylosis and left him a relatively useful limb, on which he was able, in spite of the false position—flexion almost to a right angle with the perpendicular line of the body—to walk or limp around for a good many years. We find, as is shown in the figure, a tuberculous abscess filled with cheesy mater, situated on the pelvic surface of the corpus ossis ischii.

This abscess communicates with two osteo-tuberculous cavities; the upper one in the acetabular portion of the os ischii, the other in the atrophic head of the anchylosed os femoris. Still lower in the head of the femur is another small, round, tuberculous cavity (13) that has no communication with the above described ones. This local tuberculosis of the hip joint and its surrounding bones was the primary disease. The arthritis terminated in an anchylosis. The tuberculous cavities, filled with cheesy matter and lined with a membrane containing thousands of miliary tubercles, remained for a long series of years harmless, but finally were the source of an infection from which emanated the fatal tuberculosis of the lungs.

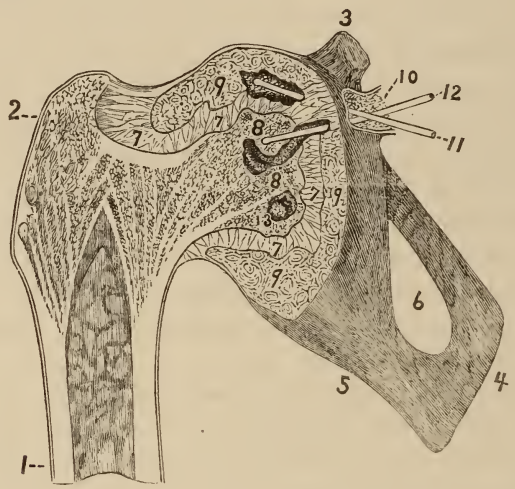


FIG. 7.—Anchylosed hip joint. The femur in a degree of flexion, forming a right angle, 90° with the perpendicular axis of the body. 1. Shaft of femur. 2. The trochanter major. 3. The spina ossis ischii. 4. The symphysis ossis pubis. 5. The ramus horizontalis ossis pubis. 6. The foramen obturatorium. 7. Firm fibrous tissue filling up the former cavity of the joint, uniting 8. the remnant of the atrophic head of the femur with 9. the bony walls of the irregularly excavated cavity of the acetabulum. 10. Tuberculous abscess, viz, cavity filled with cheesy matter on the inside of the os ischii in the cavity of the pelvis minor. 11. Probe leading through this abscess into a tuberculous cavity in the os ischii on the inside of the former acetabulum. 12. Probe leading through the abscess into a tuberculous cavity in the anchylosed head of the femur. 13. Isolated miliary tuberculous abscess or focus in the head of the femur.

The tuberculous cavities in the bones, in these cases, and the tuberculous abscesses around the bones keep the patient in constant danger of a general tuberculosis in the vital organs of the body. How long a period—how many years the local tuberculosis will remain latent we do not know. Neither do we know the circumstances or causes under which the tuberculous poison from those hitherto quiet foci spreads out from its local seat into the organism and causes either an acute miliary tuberculous meningitis of the base of the brain, or an acute miliary tuberculosis of the lungs, or a chronic tuberculosis of lungs, genito-urinary organs, peritoneum, etc.

We now very naturally have to ask the question: Will this new light thrown upon the cause and nature of fungous arthritis have any influence on the treatment? Will we have in the future to operate on cases in which we before trusted to an expectant and less bloody means of cure? We must answer the question in the affirmative, but at the same time warn against an unlimited cutting away, regardless of results, of every particle of tuberculous tissue of the local tuberculosis, in view of avoiding a fatal generalization as unnecessary and not indicated. It certainly was for many years a *pium desideratum* to be able to cut away old cheesy deposits in lungs and bronchial glands, as the pathologist saw in numerous cases the deadly general tuberculosis start out from these very places. In later years this *desideratum*, to prevent general infection, was partly realized by removal* of cheesy glands from the neck, and scraping out of scrofulous ulcers with the sharp spoon. But as we learned to know the true tuberculous character of a great many of the so-called scrofulous inflammations, cheesy glands, sores and fistulæ, some varieties of lupus, we were obliged to give up part of our inherited dread of miliary tubercles, knowing that a number of the last named local tuberculoses heal up without operation and without being followed by fatal general tuberculosis.

The still considerable number of cases where the local tuberculosis leads to a fatal generalization compels us to operate where

* Hüter: Die Scrofulosis und ihre locale Behandlung als Profylaxe gegenüber der Tuberculose. Volkmann Klinische Vorträge Chirurgie No. 15.

the removal can be effected without danger to the life or any considerable destruction of the part affected.

The frequency of a primary osteo-tuberculosis, as the cause of the fungous arthritis, demands a minute and constant watching of the initial stage of the disease, and as soon as we may be able to make the diagnosis of the affected locality of the bone, we will have to proceed to its removal by gouge, trephine and currette, etc., or its destruction by red hot iron (Kocher.) It is completely useless in these cases to lose time by relying on the application of external remedies, even down to actual cauterization, though the whole thickness of skin and subcutaneous tissue be destroyed by the same. They will have no effect at all upon the local tuberculosis in the interior of the bone, and this will proceed undisturbed on its way toward the destruction of the joint.

Further, we shall have to make a change in the old indications for resections—excisions—of the joints. The majority of surgeons have been used to make the excisions late, often too late, in the course of the disease. We were accustomed to require discharging fistulæ, or palpable periarticular abscesses, besides crepitation on motion of the joint, which latter means a carious destruction of the articular surfaces. Now we find in a number of cases of extensive tuberculous destruction of the epiphyses and fungous destruction of the synovial membrane, no fistulæ, no abscesses, no crepitation on moving the joint, and nevertheless the excision strongly indicated, as shown by the records of the knee case, (Fig. 4) which we have before mentioned. In a case at Cook County Hospital, where a successful excision of the knee joint was performed by Dr. Isham, there were no fistulæ, no abscesses, and only slight swelling of the joint.

The boy had for years been unable to use the limb, on account of pain in the joint. There was some angular deviation outwards and some lateral mobility owing to destruction of the internal lateral ligament. The exsection revealed, besides a fungous arthritis with partial destruction of the articular cartilaginous surfaces, a tuberculous cavity filled with cheesy matter in the upper epyphysis of the tibia, extending down below the cut

surface of the latter. The exsection combined with *évidement* of the lower part of the cavity, and drainage through a drilled opening through the anterior surface of the epiphysis, affected a complete recovery viz., an anchylosis with a useful limb.

As we have already pointed out, we must leave the details of indications for operation, and details of symptoms and course for future clinical records of cases, which will be published as a continuation of our present paper. We shall here only mention the two main points for consideration, before we resort to excision of a joint.

The first is, we require as the probable result of the operation, a more useful limb for the patient than he had before the excision, or probably would have within a reasonable time without surgical interference.

The second ; we insist and expect, in removing the tuberculous joint to free the patient from an ever-existing source for general tuberculosis—a sword of Damocles hanging over and constantly menacing his very life.

The larger the quantity of cheesy matter, the less the possibility of a speedy absorption of this infectious substance, the greater will be the importance of the second point as an indication for operative interference.

But the whole modern tendency towards conservatism in surgery demands that the question of general tuberculosis be put second to the question of the function of the joint or the limb. In deciding otherwise we would run a risk for an uncertain gain, the percentage of which is as yet not known, in operating on cases where non-interference would give as good results with less, or without temporary danger to the life of the patient. Future observations will have to determine the relative weight of these two main factors in the indications for operative interference.

It will only be through numerous carefully-observed cases that future surgery will be able to decide upon the best course of procedure in each single instance of the disease in question.

We would be glad to hope that our paper of to-night may bring numbers of the profession here to participate in the further development of our knowledge to, and in the solution of the main questions regarding the miliary tuberculosis of the joints.

## ARTICLE IV.

RÉSUMÉ OF WORK ON "EPILEPTIFORM SYPHILIS." By DR. CELSO PELLIZARI, of Florence.

In the first place I propose to call "epileptiform syphilis" those complicated phenomena which produce that form of convulsions which, until now, have been designated under the names of "hemiplegic epilepsy," "epileptic hemiplegia," "muscular spasms." Most all the authors have agreed to comprehend under the name of "syphilitic epilepsy" all the convulsive forms which depend on syphilis. Others, after the denomination of "spasms muscular," given by Tach to these convulsive phenomena, have said that the *tout ensemble* of phenomena did not deserve the name of epilepsy, as there were lacking some of its characteristics. The names of "hemiplegic epilepsy," "partial epilepsy," "epileptic hemiplegia," "hemi epilepsy," etc., comprehend only particular forms, and therefore cannot comprehend them all. As these convulsions manifest themselves always with the form of attack which gives an immediate idea of the epileptic fit, I have proposed the name of epileptiform syphilis, which, in my judgment, is better suited to the said disease, as whatever may be the form, the attack is always there, and gives at once the idea of epilepsy.

Case 1. A man 38 years old was admitted in the hospital of San Maria Nova, on the 24th of May, 1878, on account of convulsions, which had not left him for some days. He had had syphilis 16 years before, and bore marks on his body which were, beyond any doubt, those left by syphilitic sores. As to the convulsions, he had had the first in July, 1877, while at work. Taken to the hospital then, they had applied ice upon his head, and the attack did not return. From that time until the 20th of May, 1878, the patient had no more convulsions, only he complained of general weakness and dizziness. The 20th of May he was taken by dizziness, which continued till the 22d. In the night of the 22d to the 23d he had two convulsive attacks. In the following night the convulsions occurred five or six times;

on the 24th the attacks became more numerous, and the patient could give no account of himself whatever. The convulsions had always the same form, and were *unilateral*. The attack was in form of partial epilepsy. The patient began to open the eyelids and roll his eyes towards the left. The left angle of the mouth was strongly drawn one side; therefore all the left side of the face felt the convulsions almost contemporaneously; the patient extended the left arm, closed the fingers, and the thumb remained pressed between the fore finger and the third finger; the cyanosis succeeded very soon, and the convulsion was at an end. During the attack there was involuntary emission of urine and of fæces. During the first night of his stay in the hospital the patient grew considerably worse; the next day (25th) continued to have the attacks stronger, and more and more frequently. After the convulsion he went into a profound drowsiness, from which it was impossible to bring him out. Treatment with the frictions of (℥i) 4 grams of the mercurial salve, and a potion with (grs. xlv) 3 grams of iodide of potassium was begun at once. Leeches were applied, and also a bag of ice which was placed on his head permanently; however, all was useless, and the patient died at 10 a. m. on the 26th. The convulsions had grown worse in frequency and intensity; an augmentation of temperature was visible during the last 30 hours, but until then had been natural all the time. The diagnosis was that we had to deal with a gummy pachymeningitis of the excito-motrix zona of the right, admitting, however, that an exostosis, or a gumma of the cortical substance could have given the same phenomena; let us add, besides, that probably to the specific form was added an acute attack of inflammation, which alone could account for the hasty death of the patient. In fact, at the autopsy the dura mater was found stretched, and the meningea media dilated with liquid blood. Against the right frontal lobe of the brain, very near the orbitar plane, the dura meningia was soldered with the cerebral substance to the extent of the size of a piece of 5 francs. The adhesions were so tenacious that they could not be detached without a knife; in the middle of the adhesions were found, here and there, small bony and calcareous formations. The cortex of the brain in this spot was, to a great extent, destroyed, and its place taken by well-or-

ganized connective tissue. In the spaces under the arachnoid was infiltrated a small quantity of clear serum. The pia mater di not peel nicely from the convolutions. On the left, between the second and third frontal convolutions were noticed two small osteomata, and in the middle of the second convolution a small nodule as brilliant as a raw tubercle, which made a slight protuberance on the surface. The nervous cerebral substance appeared a little more consistent than usual; in the annular protuberance was a grayish spot, occupying the inferior segment of the right cavity. The veins were swollen and full of blood; however, the vessels did not show any alteration of their walls. Besides these alterations, there was disease of the tibia, and gummy nodules of both testicles.

In my pamphlet I have talked at considerable length upon certain considerations, in order to prove that there is not another disease besides syphilis which could present such a clinical and anatomical table. Then I gave my second observation, as follows: A boy aged 8, born of syphilitic parents, who had himself been under treatment at various times for congenital syphilis. This boy was taken to the hospital of S. M. Nova on the 26th of November, 1878, on account of convulsions, which had occurred daily for about ten days, but only affected the left side of the body. The specific treatment, with mercurial frictions and iodide of potassium internally, gave great improvement; the fits became much less frequent, and the child began to walk about the ward. All was apparently going well, when the patient was suddenly taken with typhoid fever, and died in a few days, that is to say, on the 28th of December.

*Post Mortem:* The skull and dura mater were found quite healthy, as was also the pia mater, except opposite the right paracentral lobe, where it was a little thick and opaque. There was slight wasting of the brain substance. No gumma nor tubercles were found. At the upper part of the right lung was a circumscribed patch of pneumonia, surrounding a cicatrix, which seemed to be that of a by-gone gumma. The liver presented a deeper cicatrix on its convex surface. In the intestines, clear evidence of typhoid fever was found in Peyer's glands. Taking into consideration the ideas of well-informed writers, I believe

that the slight alterations, found at the autopsy, are not without some worth. In fact, the autopsy only showed what the clinic had declared it to be; that is, the child cured of convulsions, and dying afterwards of another disease. As the treatment was successful in making the convulsions disappear, it ought, also, to have destroyed the material cause, as well.

My third observation is a man of 36 years. He entered the syphilitic clinic of Florence on the 5th of February, 1879. His mother had suffered from convulsions of epileptic form for twelve years, which had begun with the fourth confinement. The patient was born during the interval of these twelve years, but all his youth was passed in perfect health. He had been treated in the said clinic for syphilis by Prof. Pietro Pelizzari (my uncle) in 1863; in 1877 he began to have pains in the head, which did not have a very decided nature. Shortly after the pains had begun, a kind of ulcer showed itself on the inferior lip, for which he was ordered alteratives. In three months the sore was cured, but the pains, although weaker, continued. In this condition he went till March, 1878. The 7th of the month he began to stammer and feel faint, without, however, losing consciousness. Ten minutes later he was taken by a convulsive attack. In the same day he had another attack, and it was reported, with loss of consciousness. They gave him bromide of potassium and nux-vomica, but the convulsions continued with phenomena of amnesia. The convulsive fits were always partial, only the right part of the body entered into convulsions. The fits, which were always preceded by stammering, and which did not deprive him of consciousness, had intervals of fifteen to twenty days, but when they occurred, they were more numerous. In October, having had stronger fits, and some tubercles having appeared in groups and ulcerated on the right thigh, he went to Prof. P. Pelizzari, who, determining it to be a specific cerebral affection, ordered the treatment, with the frictions of (℥j) 4 grams of mercurial salve, and iodide of potassium, from (℈j–℥ss) 1 gram to 2½ per day. Under this treatment the sores disappeared and he was free from convulsions for two months. Towards the end of December the convulsions reappeared (he then came to Florence, when I saw him for the first time), but with these a weakness of intellect and

of muscular power was visible; there was paresis of the right arteries and a slight deviation of the tongue towards the right. The iodide of potassium helped him considerably, and put a stop to the convulsions. On the evening of February 2, 1879, having drunk of wine and smoked too much, the patient was again taken with convulsions. The fits, which at first occurred every hour, grew so numerous that, on the 4th, when I was called in to see him, they did not leave him ten minutes at a time. The fits, which lasted one minute or a little more, were still limited to the right half. The patient was quite prostrated. The 5th of February, when taken to the hospital, he was in such a condition that it was impossible to get one word out of him, and the attack had lost its unilateral type. There was no fever. The diagnosis of the clinic was that of meningitis-gummosa in the left occipital zone. The treatment was: Frictions with mercurial salve, (℥j) 4 grams; iodide of potassium, (℥j) 4 grams. Applications of ice upon the head permanently. Having obtained no improvement, the following day the ice was taken off, in order to make a revulsion by applying a blister on the neck and sinapisms to the inferior extremities. Under this treatment there was a slight improvement, which lasted about two days. On the morning of the 10th he was much worse; was taken with strong fever, the convulsions increased in frequency, and were general. Death occurred on the 13th of February, in the evening.

*Post Mortem:* The dura mater, on the left, appeared more opaque than on the right, although at that side there was a spot where it was thicker. Nothing morbid was found on the right. On the left nothing morbid appeared corresponding to the occipital lobe, but towards the frontal lobe the dura mater was found adhering to the under membrane, beginning at Rolando's furrow. These adhesions were not strong for a short space, but in correspondence with the frontal convolutions, were so tenacious that it was impossible to detach the dura mater without lacerating the nervous substance. These adhesions were found to correspond to the first, second, and third frontal convolutions, beginning from their orbitar extremity, and existed even upon the inter-hemispheric side of the first frontal. However, the posterior extremity of the third frontal, or convolution of Broca,

was not included in the area of the tenacious adhesions. In correspondence with the same, and with the ascending frontal, the adhesions could be broken with the finger without laceration of the cerebral substance. The nervous substance of the left frontal lobe was softened, diffluent and white. The softening destroyed the cortical substance and the oval center corresponding to all the first and second frontal, and of the anterior two-thirds of the third, deepened to the external capsule, which seemed intact to the naked eye. Near the base of the third frontal, and of the ascending frontal, the pia mater detached itself with difficulty from the cerebral surface, and there the cortical substance was of a pinkish lavender. The cerebral arteries were sound. No alteration of the viscera of the chest, nor of the abdomen. Although the mother had conceived him while she was epileptic, it was difficult to believe that he was affected by hereditary epilepsy. In fact, in this case, the convulsions would have been determined when he developed, but not that special form, nor with these alterations. I believe firmly that the patient died of cerebral meningitis, which was due to syphilis, and I don't think it posssible to attribute it either to alcoholism or to a thrombus.

In the second part of my work, I speak of epileptiform syphilis in general. As to the etiology, I believe that epileptiform syphilis develops itself rather more in those syphilitics who have an hereditary disposition, but, among the other causes which help in developing that disease, are wounds of all kinds, abuse of mental fatigue, alcohols, and "pleasures of Venus," as the Italians term it. That form of cerebral syphilis may occur at all ages. Le Pileur tells of a case of epileptic convulsions from syphilis in a child one month old. In our three cases we find a patient of eight, and another of thirty-eight. The time which elapses from the syphilitic infection to the determination of the fits, varies from some months to sixteen years, in the cases known till now. I do not think that it is possible yet to determine whether this form of convulsions comes sooner in those who have not used mercury, or in those who have abused it, or those who have used it moderately. The statistics in medicine are not precise enough. The anatomic alterations, which generally cause the epileptic form are several. The alteration of

the bones of the cranium may determine the different convulsive forms, either directly, with exostosis, which exercises compression upon the cortical, or indirectly, when they are caused by meningeal affections. The gummy form of the meninges is admitted by every one to be the most common alteration in this disease; it may be circumscribed to a tumor or diffused. The disease of the brain, and in particular of the cortex, may even cause the convulsions. Finally, as to the parts which have the essential alterations, in this disease, there is still some doubt; some authors admit that even the alteration of the vessels alone may occasion epileptiform syphilis (I speak of it in my work on cerebral disorders). I don't believe the following question well answered yet, that is to say: "Where are to be found the lesions which may give origin to the epileptic convulsions?" I am rather inclined to admit, with Charcot, that in partial epilepsy, the alteration ought to reside at the surface of the frontal convolution and *ascending parietal*, or, at least, in their immediate vicinity. Are these convulsive fits always the expression of a material lesion, or is there also an epileptiform syphilis *sine materiâ?* I believe that conclusive observations upon epileptiform syphilis, in which the autopsy has not shown any alteration, *do not exist;* but I believe that alteration of the blood and of the lymphatic system when infected can have the power in certain persons and in special conditions to give place to convulsive fits of itself. I do not deny epileptiform syphilis *sine materiâ*, but I want it restricted to a very few cases. At all events, these discrasic forms cannot correspond absolutely to the common one. They must have a great variability of *seat* and of form, and they must be quite brief; in these the fits will not repeat themselves with so much persistence, will not have so significant a form, and will not be so limited to any one part of the body, and will never be followed by paralytic phenomena, which persist after the convulsions. The only protean forms of specific epilepsy which may have value in practice in preventing a fatal result, are the cephalalgiæ, which, although they do not always take place, occur in the greater part of cases, and sometimes appear many months before the convulsive attack. Their characteristics would be persistent, and localized in the forehead. The character of the fits is not always the

same; many times they are preceded by something out of the ordinary course, such as a fixed pain in a finger, a feeling of pricking like stinging of ants, of noise in the ears, of trouble in the eyes, of chills, muscular trepidation, of gasping, etc., which give the patient to understand the convulsion is coming. It may be general or partial. It is, however, oftener partial than general, and also, in the cases in which the convulsions become general, the prevalence in one part still remains. The length of time that the attacks last is much varied, as also is their number. The entire loss of consciousness occurs seldom with these fits. Among the morbid remains of the convulsions are noted: fatigue and deep prostration felt by the patient; paralysis, alteration of the sensibility, and finally intellectual disturbances, which may oscillate from simple diminution of the memory to dementia. The diagnosis of epileptiform syphilis is pretty difficult, and on account of it, the physician must not content himself with studying the attack as long as it has no special patronymic symptoms, but he will have to notice very carefully the other syphilitic alterations which may accompany it, the age of the patient, and, above all, work with zeal and patience to find out and put in evidence the pre-existence of syphilis. Another most important item is the ensemble of phenomena presented by the patient rather than that of a separate symptom; that is to say, of the convulsions, the form in which they develop themselves, the way in which they show themselves, and the prodromata which accompany or follow them. Finally, the physician may also be helped by the therapeutic judgment, which may be had, also, when we see the patient for the first time, when he has suffered beforehand from the common phenomena which precede the convulsions, as, for example, cephalalgiæ, dizziness, etc., and has been cured of them by specific treatment. The prognosis is serious, however its dangerous nature may vary, according to the alterations which are supposed to have caused these convulsions, and according, also, to the time that the sickness lasted, since, in the greater number of cases, the short duration of the symptoms indicates relatively the slight intensity of the material alteration. As to the cure, I beg my readers to observe that it is not as easy as it might seem to be. After

having fought the ideas of those who admit the tardy forms due to the mercury, instead of to the syphilis, I do not deny that the remedy, taken in exaggerated doses, or in certain organisms, may produce some trouble in the cerebral tissues. In general, I do not approve of the energetic mercurial treatment for slight phenomena, whether of the skin or of another system; I neither approve of too prolonged treatment. I prefer to do it little by little, at intervals, giving, for example, mercurial preparations for ten days, and for the ten following days, iodide of potassium; after the last, leaving the patient for a week or two without any medicine, and this in order to prevent the accumulation of mercury in the organism. This is also the method I prefer for cerebral phenomena which have shown themselves for some time but slightly. Of course I know this ideal treatment cannot be put in practice in cerebral syphilis, but, occasionally, with a patient who has attacks daily, without intermission, the treatment must be made with the most powerful means; frictions with (℥j) 4 to 5 grams of mercurial salve, or with hypodermic injections, united with the iodide of potassium, in a dose of (℥ss–j) 2, 3 to 4 grams, and sometimes more, daily. There may be, also, some difference in the cases where it is necessary to act energetically. For example, in the time nearer infection, it would be necessary to confide more in mercury than in the iodide of potassium; but the contrary, when the patient has used mercury freely and a good deal in a short time. In cases where there is supposed to be an exostosis by condensing osteitis, as of the fibroid form of the meninges, or of the tunics of the vessels, it will be necessary to use mercury sparingly, and give, on the contrary, much importance to iodide of potassium prolonged. The most energetic mercurial and iodide treatment will be made, when there will be reason to think of the real gummy form, especially in the cerebral substance. Certainly it is very difficult to say, if, to the specific alteration, there be added a simple inflammation or a softening; but when the diagnosis can be made, it is the duty of the physician not to insist on mercurials. In this case I believe that an accumulation of mercury in an organism may contribute largely to accelerate death. It has been noted how, in epileptiform syphilis, the iodide of potassium, after some time, had no more

effect, and that bromide has been an excellent substitute. Finally, the physician must recollect that, besides the remedies called specifics, there are others which may be required by the acute and decidedly phlogistic phenomena, by the severe reflex irritation, by the state of drowsiness, by the posture, etc., which may have occurred, and these remedies are: ice, bleeding, sedatives, excitants, hydrotherapy and electrotherapy.

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## Article V.

### The Value of Salicylic Acid in the Treatment of Rheumatic Diseases of the Eye. By F. C. Hotz, M.D., Chicago.

The beneficial influence of salicylic acid and its salts upon rheumatism has been so often attested that it would be superfluous to write another line about its anti-rheumatic action. But, judging from the scarcity of published reports and from my own observations of practice in eye clinics, I am inclined toward the belief that in the treatment of rheumatic affections of the eye, the salicylates have not yet won the general recognition they justly deserve. The local changes in the eye receive such exclusive attention that the influence of constitutional disorders is often overlooked. In the treatment of iritis, particularly, we are accustomed to rely upon the effect of local medication to such a degree that the use of constitutional remedies is seldom suggested unless syphilis is manifest or suspected.

I would not have it understood that I do not regard these local remedies of paramount importance. I admit that many cases of acute iritis have been cured by the use of atropine together with the proper care of the eye. But occasionally we meet with a case which does not seem to do well, although the atropine develops its full effect upon the iris; the pupil is completely dilated; there are no adhesions between the iris and the anterior capsule of the lens; and still the inflammatory symptoms persist in undiminished severity and the pain about the eye does not abate. It is in such cases that a more careful inquiry may often disclose

some constitutional disorder and the use of proper constitutional remedies will be of great advantage.

I will illustrate this point by the following two cases:

1. *Acute rheumatic iritis, severe supra-orbital neuralgia, readily relieved by salicylic acid.*

Geo. W. A——, æt. 42, engineer, presented himself, October 6, 1877, at the Illinois Charitable Eye and Ear Infirmary with all the symptoms of an acute iritis of his right eye, to wit, intense peri-corneal injection, discoloration of the iris, contraction of the pupil, posterior synechiæ and violent supra-orbital pain. The patient had never been troubled with sore eyes, never had syphilis, but had several attacks of rheumatism. His eye had been inflamed two weeks.

Oct. 20.—Although all the posterior synechiæ are broken up and the pupil fully dilated by atropine, the pericorneal redness and supra-orbital neuralgia persist; the pain being particularly violent toward night. Salicylic acid, (gr. iij) 0.25 every two hours.

Oct. 27.—After he had taken ten powders, his head felt quite relieved; and he has been free from pain ever since. Pericorneal injection greatly reduced.

Oct. 30.—No return of the neuralgia; eye free from all inflammation.

2. *Acute Iritis; persistent neuralgia readily relieved by salicylate of soda.*

John McG——, æt. 24, sailor, presented himself at the dispensary of the Eye and Ear Infirmary on February 23d. He had been treated at some other dispensary for an acute iritis of his right eye; but, though the pupil was fully dilated by atropine, the eye was itensely red and painful, the pain being particularly severe at night. Atropine was continued and salicylate of soda given internally.

Feb. 25.—Had no pain last night.

Feb. 28.—Eye continues to improve.

March 15.—Cured.

It seems to me the history of these cases forces upon us the conviction that the earlier administration of the salicylates would have materially shortened the duration of the malady. I had been so impressed by these observations that ever since I have been in the habit of prescribing salicylate of soda in acute iritis

when I could discover or suspect a rheumatic diathesis in the patient, just as we would give mercury in iritis when we have reason to believe it to be the local manifestation of constitutional syphilis. And I believe that by this practice iritis has been arrested in its incipiency in some cases and perceptibly shortened in others.

The following cases are instances of this kind.

3. *Acute iritis of left eye; rheumatic history; recovery in one week.*

Mr. H. B——, æt. 50 years, saloon-keeper, had ten years ago a severe attack of articular rheumatism followed by an inflammation of the left eye. This inflammation lasted four weeks, but finally passed away without injuring the sight. On February 21st he came to my office, stating that two weeks previously his left eye became red, painful and sensitive to light; the pain varied a good deal sometimes being quite severe, sometimes scarcely perceptible, but the intermissions did not show any regular periodicity. I noticed a marked redness around the cornea, iris somewhat discolored and dull, pupil small and ragged under the influence of atropine, owing to numerous posterior synechiæ. By the continued use of atropine and the internal administration of sod. salicylate (gr. ijss) (0.20 every two hours) the posterior synechiæ were quickly broken up, and the eye recovered so fast that on February 28th there was not a trace of inflammation left; pupil was clear and regular, iris bright, and no pericorneal redness.

4. *Incipient rheumatic iritis arrested by salicylate of soda.*

Mr. B. P. Q——, æt. 27, traveling clerk, has had several attacks of rheumatism and is very liable to catch cold. Four days ago, while traveling, he stepped from the overheated coach upon the platform in order to cool off. The air was very damp and chilly, and he attributed to that exposure his present trouble. For the next day his left eye became red, painful and sensitive to light. On March 4th, when he consulted me, I found all the symptoms of an incipient iritis (pericorneal redness, contraction of pupil, slight discoloration of the iris, lachrymation, photophobia and pain). I prescribed atropine for the eye and, on account of the rheumatic diathesis, salycilate of soda, (gr. iij) 0.25 every two hours. Two days afterward the patient called again. He had taken twelve powders when the buzzing in his head made him discon-

tinue their use. But his eye had improved so rapidly that it was practically well at this second visit. The pupil was regularly and fully dilated, the iris clear and bright, the pericorneal redness had disappeared and lachrymation and pain subsided.

The instances here reported are selected from a number of similar observations. I preferred to relate a few specimen cases, rather than to fatigue the readers by a long series of cases, because, in view of the well-established value of the salicylates as anti-rheumatic remedies, these few cases are sufficient evidence to show that the salicylates can be as valuable agents in ophthalmic practice as they are in the hands of physicians. For the same purpose I will add two cases of rheumatic paralysis of the ocular muscles, in which the salicylates affirmed their anti-rheumatic power.

5. *Complete paralysis of the right oculo-motor nerve; rheumatic origin; recovery by salicylic acid.*

Mrs. D——, æt. 29, came under my care at the dispensary of the Eye and Ear Infirmary on September 15, 1877. She had repeatedly suffered from rheumatic inflammation of the knee-joints and from neuralgia of the forehead. Four weeks ago she was seized with a very violent attack of neuralgia over the right eye; it lasted three days and when it subsided the right upper eyelid drooped so much that she could not see out of that eye. This condition persisted without change, although she tried a variety of remedies. I found complete ptosis of the right upper lid, due to paralysis of the levator muscle; and upon raising the paralyzed eyelid, I observed a marked degree of divergent strabismus of the right eye. And it was easily shown that this divergent strabismus was caused by paralysis of the internal rectus muscle, for the patient was unable to turn her right eye toward the left side. In fact, the eye was almost immovably fixed in its position, with the cornea turned toward the external canthus because not only the internus but also all other ocular muscles (superior and inferior rectus, inferior oblique and sphincter pupillæ) dependent upon the third (oculo-motor) nerve were paralyzed.

The patient was at once put upon salicylic acid, (gr. iij) 0.25 three times daily; and by the 30th of September the muscles of her right eye had recovered so much that she could open it and turn it in every direction just as well as the left eye.

6. *Rheumatic paralysis of the motor-oculi nerve; rapid recovery by salicylic acid.*

Mrs. Carrie Cl——, æt. 32, consulted me on October 10, 1877. Two weeks previously she had stood in the draught of the damp, cold air while her head was wet with perspiration. On the following day she had a violent neuralgia in the left side of her head, lasting three days. When it subsided the sight of her left eye became dim; then she saw everything double and finally the left upper lid dropped down over the left eye so that she could not see out of it at all. This condition had lasted ten days without any perceptible change.

I found complete ptosis of the left upper eyelid; complete dilatation and immobility of the pupil and complete inactivity of the superior, inferior and internal recti and the inferior oblique muscles. In other words, all the ocular muscles supplied by twigs of the oculo-motor nerve were paralyzed. Quinine and salicylic acid, (gr. ij) 0.15 of each, was ordered to be taken every three hours.

Oct. 22d.—The left upper lid can be elevated quite well; left pupil contracting, though still slightly larger than the pupil of the right eye. A faint trace of contractility in the superior and inferior recti.

Oct. 27th.—Marked improvement in the action of the upper and lower recti; only the internus is still totally inactive.

Nov. 7th.—To-day the internus shows a decided improvement. The eye can now be turned in every direction but its rotation toward the right side is still insufficient.

After this date the patient discontinued attendance, so that I have not any direct evidence of her complete recovery. But the fact that she did not return after having improved so fast, may be accepted as a reasonable ground for believing in her recovery.

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## Article VI.

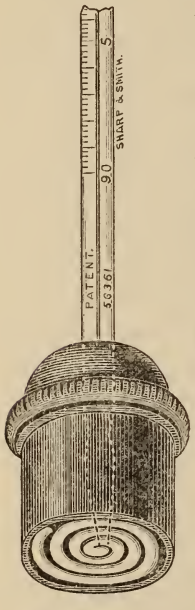
### A New Surface Thermometer. By Daniel R. Brower, M.D., Chicago.

That the surface temperature varies with the change in the nutrition of the parts beneath, is a fact beyond question, and if we can establish a standard of variation for different disturbances of

nutrition, we will have in this a valuable aid to diagnosis. To make these observations useful to the busy practitioner the instrument used for the purpose must make rapid and accurate records.

The original surface thermometer as devised by Dr. Seguin is unreliable because, as is well known, a moderate pressure, made upon the bulb will alter the height of the column of mercury one or two degrees—the maker aiming at rapidity, sacrificed accuracy. Dr. L. C. Gray obviated this difficulty by having the bulb made so heavy that ordinary pressure would make but little alteration in the record—but this extra thickness of the glass makes a much longer time, necessary for a correct observation. This instrument should remain in situ about fifteen minutes.

A new instrument was therefore demanded with which an accurate observation could be made in a shorter time, and this seems to be well accomplished in the thermometer, recently sent us by Messrs. Sharp & Smith of this city, made by Hicks, of London.




It is well represented in the accompanying cut. The bulb is peculiar in its construction. Instead of being flat, as in the Seguin instrument, or elongated as in the ordinary one, it is made of a slender glass tube coiled upon itself three times—exposing a large surface of mercury to the body in such a shape that pressure makes no impression upon the column. The stem has a contracture as in the ordinary thermometer to prevent loss of the index. This stem passes tightly through a rubber diaphragm that serves to keep the coil closely applied to the surface The coil and diaphragm are enclosed in a hard rubber case that effectually guards the former from varying conditions of external temperature and serves to give the hand a firm grasp of the instrument while being applied.

We have found after numerous tests that this instrument will not only give an accurate record of temperature but will give it in one-half the time the Gray instrument requires.

# Clinical Reports.

## NOTES FROM PRIVATE PRACTICE.

### ARTICLE VII.

*A Case of Triplets.*

Mrs. S., wife of a mechanic in moderate circumstances, ceased to menstruate the last time on August 17, 1879. Complained of labor pains on the 6th of April, 1880.

I was called about noon; she was having light pains. I made an examination; found head presentation. The os uteri not being sufficiently dilated, I gave a powder of pulv. doveri, to be taken

on the evening of the 6th. Was called about two o'clock a. m. Her pains were light and came on once every ten to fifteen minutes, till about one o'clock p. m., then the uterus being well dilated, I ordered a full dose of fluid extract of ergot, to increase the force of the pains.

No. 1 was born at half past one, with the natural head presentation. I ruptured the sac and a moderate amount of amniotic fluid escaped. The child was in appearance about seven and one half months poorly nourished; bones of the skull soft, and did not show much vitality, never cried or took a full inspiration, only gasped a few times.

No. 3, as you will see in the cut, was delivered by crowding up the breech and grasping the feet. I delivered it in about fifteen minutes after the first. This child looked different in contour, was not so long as the first, but cried lustily; showed good lung and muscular development, and weighed about one pound more than the others.

I then assured the good mother that her trouble would soon be over. But by placing my hand upon the abdomen to assist in the removal of the afterbirth, to my surprise I found another child within the uterus with a head presentation safely ensconced upon the left side. I ruptured the membrane and a large quantity of amniotic fluid escaped, more than had previously escaped, and soon after the third child was born, but never breathed, and I noticed dropsy of the cord in the latter case. It was as poorly developed and nourished as No. 1. I then removed the afterbirth with its three cords.

*Comments.*—It seems that the middle child, or No. 3, was better nourished, with more advanced muscular development, larger chest, more advanced ossification of cranial bones. The question arises were they all incubated at the same time, or would the one located in the center of the uterus receive more nourishment from the mother than the other two. All three were girls.

April 9th, mother and No. 3 doing well, and we have hopes of the father.

Yours truly,

Sterling, Ill. J. B. CRANDALL.

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DR. NORMAN BRIDGE, the librarian of the Chicago Medical Press Association, has been appointed to the medical staff of the Cook County Hospital. The appointment of such a competent man is one which is regarded with universal satisfaction.

# Society Reports.

## Article VIII.

Transactions of the Chicago Gynæcological Society. Meeting April 16, 1880. President Prof. Byford in the chair. Topic, Retroversion of the Uterus. H. Webster Jones, M.D., introduced the subject in the following paper:

The general adoption of the term "uterine displacement" presupposes a uterine "situs," i. e., a *normal position.*

The uterine *norme* is preserved when its axis is parallel with that of the superior strait, its fundus at or just beneath the plane of that strait, its os an inch and a half to two inches above the floor of pelvis (or tip of coccyx), the cervix distant from the third sacral bone an inch and a half, and from the sub-pubic ligament two and a half inches.

Deviations from these relations are common, and, within certain limits, normal.

When normal, they are transitory and due to variable distentions of the bladder, of the rectum, of the abdominal viscera, or to active erectility of the tissues of or surrounding and connected with the uterus.

When abnormal, they are more or less persistent, depend upon vicious states of the uterus, or of the organs and tissues with which it is related, or yet may be purely mechanical, and in either case, competent to exercise morbid influences over nerves and nerve centers, perverting nutrition, sensation and functional offices in a remarkable degree.

When a section of the pelvic contents is projected upon a plain surface in accordance with the above postulate, the uterine axis will be found meeting that of the vagina at or about a right angle,

which becomes acute as the uterus descends to impinge upon the pelvic floor, and obtuse only as the cervix slides forward along its inclined plane.

When in this process, however induced, the uterine passes beyond the vertical axis of the body, retroversion may be said to have commenced.

It may attain any degree of divergence from the *norme* compatible with the dimensions of the pelvic cavity; in general terms, from one to eighty degrees from a perpendicular, or sixty to one hundred and forty from the *norme*.

The uterus projecting downward through a plane called the "pelvic roof," which intersects the sub.pubic ligament and the junction of the third and fourth sacral bones, is sustained by cellulo-muscular processes—continuations of its own structure (Rouget), some of which are called ligaments, whose lines of force radiate in the plane mentioned from the cervix toward the sacrum, sacro-iliac junctures, and walls of the pelvic cavity like a fan whose handle the vagina well represents. It is upon the normal antagonisms of all these forces, vagina, utero-sacral and lateral ligaments, that the *situs* of the uterus depends, the vesico-uterine folds the round ligaments and anterior muscular structures of the perineum, being adjuvants worthy of mention.

It needs only a general relaxation of these supports, whether of local or systemic origin, to permit lapse and prolapse of the uterus. And when persistent infringement of the cervix upon the perineal structures obtains, retroversion is sure to follow.

On the other hand, given a loss of balance of antagonisms due to pathological contraction or relaxation of connective tissue, or a localized lessening of erectility due to embolism of curling arteries, or thrombus of venous trabeculæ, and we have divergence of the uterine axis. (Patten.)

*More or less flexure of the uterus obtains in every case of retroversion.*

Among predisposing causes of retroversion are neurasthenic muscular inertia and local congestions, constipation, intestinal and vesical distention, abdominal compression, subinvolution, chronic inflammation of the uterus or of its supporting tissues, and pelvic tumors.

Exciting causes include violent and sudden muscular efforts, falling, dancing and riding on horseback, especially when the bladder is meantime distended, and last, not least, the incautious use of the speculum.

Treatment may be successful in removing the cause, yet if the displacement itself be ignored, the patient may not only be unrelieved, but become, therefore, the subject of erosions and ulcerations, leucorrhœa, dysmenorrhœa, menorrhagia, metrorrhagia, sterility, dyspareunia, rectal and vesical irritability, neurasthenia, and many reflex and functional nervous aberrations.

Retroversion becomes important soon after puberty, and diminishes in importance after the climacteric.

As illustrations of the manner of demonstration of this truth to the mind of the speaker, he selects four cases, out of a multitude of instances similar in character.

*Case I.*—The wife of a railway conductor, who had miscarried two years before, related the following story:

Six months after her miscarriage, she was, while sweeping, seized with a violent pain in the epigastrium, which she described as an "unbearable twisting" of the subjacent organ, lasting for a half hour, when she became insensible.

The paroxysms at first recurred whenever she swept, and after a few weeks, whenever she walked the distance of half a mile. All treatment proving unavailing, she was brought to the city for advice. The uterus was found completely retroverted, and enlarged to the measurement of four inches. There was no subjective symptom which pointed to this explanation. But this patient never experienced another paroxysm after the uterus was reinstated.

*Case II.*—The wife of a civil engineer engaged in building a neighboring line of railway, sent for me, as she could not endure the journey of ten miles to the city. Her only exercise was taken in a sedan-chair, when borne by the laborers to a shady spot, whence she could view the progress of the work, and have the society of her husband. She was found to have complete retroversion, extensive erosion, exhaustive leucorrhœa, wretched appetite and digestion, and was hopelessly dejected.

Two weeks were allowed me for a cure. I demanded her

removal to the city, and visited her daily, applying emollients and stimulants, and finally adjusting a pessary.

She disappeared suddenly thereafter, and I knew nothing more of the case for five years, when she visited me with an apology for the abruptness of her departure, and the non-payment of fees, and desired me to remove the pessary, which she had never disturbed in the interval.

The uterus was found *in situ*, sound in every respect, and the general condition of the patient was so excellent that I could never have recognized her. She averred that her improvement was so rapid after the ten days of treatment mentioned, that she followed her husband into the woods of Wisconsin, and soon was able to take charge of the cooking and housing of the hundred men then under his orders. She had followed his fortunes ever since, never caring to remove the pessary, to which she attributed her cure. It came out as clean and nearly as polished as when introduced.

*Case III.*—A lady of twenty-five years began to have menorrhagia soon after the birth of her only child. The drain, in two years' time, became constant and irremediable by any of the usual hæmostatics. Anæmia was excessive, and the general condition so alarming that a consultation was had, and curetting performed, but without success. Tampons gave the only palliation, and these did not prevent a persistent oozing of blood. I saw this lady a month after the operation alluded to, and restored to its place an enlarged and retroverted uterus. In twenty-five hours the discharge became pale and watery, and in a week no vestige of it remained. She has since, for about nine months, menstruated regularly and normally, though the subject of constant albuminuria. (Since dead.)

*Case IV.*—A lady had been for six months the victim of that train of symptoms denominated "neurasthenia." She had anorexia, insomnia, palpitations, constant backache, constipation, colonic catarrh, indigestion, and at times a mental paresis and childish apprehension that was pitiable to see. For exercise she was lifted from her bed to a carriage, and driven for hours every day, and had frequent massage. Every resource that science

could suggest had been applied in her treatment, but without success. No examination of the uterus had been made.

At that interview the uterus was found retroverted, but *not in any other way* abnormal. Its reposition was followed by immediate relief to the backache, and a gradual amelioration of all the symptoms, until in two months' time she considered herself perfectly restored.

The following propositions are presented for discussion :

1. The uterus has a normal situs, with normal deviations which are transitory.

2. Deviations which are constant, or which exceed the natural powers to obviate, are morbid and morbific.

3. Retroversion is the most common, most pronounced and most vicious of uterine displacements.

4. It is often present without subjective consciousness on the part of patient, nevertheless being *pars magna*, if not *fons et origo mali*.

DISCUSSION.

DR. NELSON spoke of the difficulty of establishing a normal situs for the uterus. He called that a case of retroversion when the axis of the uterus was parallel with the axis of the vagina. The speaker mentioned a case which had occurred under his observation, where the uterus was found in a state of retroversion at one examination, and a few days later was found in a condition of anterior displacement, only to be found again retroverted.

Dr. FITCH had also encountered cases like that just spoken of by Dr. Nelson, and thought it not uncommon for a uterus to be displaced in opposite directions within a period of some days. On the whole, the speaker accepted the propositions enunciated by Dr. Jones. Dr. Fitch said that the effects of uterine displacements were variable, and he believed it possible that a woman may have marked retroversion of the uterus with absolutely no effect.

DR. ROLER believed that the uterus had a normal situs but it was only when some morbid conditions occurred referable to the unusual position of the organ, that the situs should be called abnormal.

DR. MILLER : Dr. Jones has presented his subject in the most

exact manner possible. It is as concise as exact. Having predicated his conclusions on geometrical and mathematical science, he gives no latitude for imagination or discursive conversation. We are held to the consideration of lines, angles and figures, and from these there seems no way of escape. I concur in the description of the anatomical situation and relations given by the essayist. While retroversion may take place in varying degrees, the extent of the displacement cannot be taken as a measure of its pathological significance. The factors are so varied, that in one case the initial link in the chain of morbid effects will be merely mechanical—in another congestive—and in a third neuralgic—and the effects may be reflected to different and distant parts of the system.

DR. SUTTON (present by invitation) said that he regarded any position of the uterus a normal one, which produced no abnormal effects upon the woman, and which did not in any degree interfere with the functions of the organ. He would ask Dr. Fitch, if it were possible for a woman to suffer an abnormal position of the uterus with absolutely no symptoms, what there was about such a subject which led to a vaginal examination and discovery of the displacement.

DR. SAWYER believed that the uterus had a normal situs, but that that situs varied in different subjects; he thought that females were subject to as marked differences in those parts as in their facial features. The fundus moves through an arc from before backward; the extremities of this arc vary according to the condition of plenitude or vacuity of the bladder and rectum in the particular individual. Inasmuch, however, as the distension of the bladder and rectum is a factor which varies according to the habit of the woman, this fundal arc may be of a length which is physiological for one person and abnormal for another.

The speaker said further that the altitude of the organ was also subject to variations. Dr. Jones had stated that the cervical tip of the organ should be an inch or an inch and a half above the pelvic floor; these limits the speaker thought too narrow and greatly dependent upon one very important condition. The columns of the vagina are looked upon as the chief antagonists of the gravity of the uterus. Now, the angle at which these sup-

ports meet the uterus, in a word, the efficiency of the support itself, depends much upon the size of the perineal body. It is greater in women who have not borne children; consequently the uterus is normally higher in these persons. The perineal body with the external genitalia seem to shrink, as if subjected to a sort of involution, after child-bearing, and in these persons, on the contrary, the uterus is normally lower. For these reasons the normal situs of the uterus must be described for each individual, and the diagnosis of the slight aberrations from this situs must be founded upon the effects produced by them. The speaker admitted, however, that the uterus, when in the situs ascribed as normal by the essayist, does not produce any abnormal effects.

THE PRESIDENT said that within his recollection the sentiments and practice of the profession in this country had undergone two or three very considerable changes in reference to the importance of misplacements. In the early part of the century the doctrines of Prof. Hodge were the guide to practice in gynæcology. The displacements of the uterus were regarded as the principal causes of the conditions now known as hystero-neurosis or orphaso-neurosis, whichever we choose to call them. After this the writings of Prof. Meigs and Dr. Bennet created a revolution in professional opinion, and to chronic inflammation and ulceration was attributed all the blame for the sufferings of women. The pendulum of professional opinion has swung back to it and has not settled down to the proper medium. Our experience has taught us that between extremes we can generally find the truth. We seldom find displaced uteri healthy in other respects and the question is whether the displacements or the attendant diseases are the real *fons et origo* of the general symptoms. At any rate the speaker could not doubt that the best practice consisted in correcting all the abnormal states of that organ. And while he willingly endorsed all the propositions advanced so clearly and distinctly in Dr. Jones' paper, he might not treat the cases met with in practice exactly as that accomplished practitioner would.

DR. JONES: In closing the discussion, the essayist said, by way of explanation of his "geometry" of the pelvis, that it was an instructive lesson to attempt to draw upon paper the uterus or its connections in accordance with the dicta of authority.

Perhaps the most unanimous point was the length of the uterus, and next, the position of fundus, just below the pelvic brim, and last, the parallelism of the uterine axis with that of the superior strait. Given "approximately" these points, and with a "standard" pelvis, the "geometry" described would surely follow.

All that he claimed for retroversion was that no gynæcologist could afford to ignore it, and that its mechanical treatment was, like that of hernia, one horn of a dilemma, the advantages and disadvantages of which it well paid to study.

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## Article IX.

West Chicago Medical Society, February 9, 1880.

### DR. E. W. LEE ON TETANUS.

Some five weeks ago I was called to see a man who, seven weeks before, through careless driving, was thrown from his wagon and dragged some 75 to 100 feet, crushing the lower part of the leg.

A doctor was called, who said it was only a flesh wound. He did it up with some simple dressing and the man was carried home. About a week later the man noticed that his leg was not getting better, so he sent for another doctor.

The second doctor examined it, and thought it would be healed in a few days. Four or five weeks after, he sent for me.

I noticed the man had a peculiar expression of countenance—that risus sardonicus, that puritanic grin that marks a case of tetanus. It was by mere accident that I noticed it. He complained of tightness of the chest, as though a belt was fastened around him. He had had this symptom nearly ever since the injury. I thought, from examination, that the tetanus had assumed a chronic form, especially from the length of time elapsed.

I put him on bromide of potassium and large doses of hydr. chloral, giving (grs. xx–xxx) 1.3 to 2 grams to keep him in stupor all of the time. The next day he was worse. I thought best to make an examination. Did so, and found, on making an incision, probably (1 in. to 1½ in.) 2½ to 3½ cm. of the fibula

was laid bare, and found to be in a necrosed condition. A regular section of the fibula was made and the necrosed portion taken away. The wound was dressed under spray. His wife rendered the dressing futile by dressing with water. Then I dressed it with carbolized water, and afterwards with carbolized cosmoline.

The case went on getting worse. In just one week he had a case of acute tetanus. He had convulsions, and the muscles of the abdomen were in a state of tonic spasm. All of the muscles were in a state of spasm. The pulse began to rise. The temperature did not rise.

I sent for calabar bean. Commenced by giving (grs. $\frac{1}{8}$–$\frac{1}{4}$) 0.01 to 0.02 centigrams every two hours by the mouth, without the slightest effect.

Dr. —— was kind enough to attend the man during the evening; then sent me word that he could not stay during the night, so I telephoned Dr. Murphy at the hospital, and he came down and stayed with the man during the night. I sent and got Squibb's calabar bean, and gave four injections, under the skin, of (gr. $\frac{1}{8}$) 0.01 centigrams, the first hour. The convulsions abated in frequency. By the time Dr. Murphy left in the morning, it was only necessary to give the injection once in two hours.

With each day there was progression after administering under the skin. If the remedy was not given as frequently, then the convulsions would come on and gradually resume their violence. The drug had controlling influence on these convulsions. By the seventh day an injection in the morning controlled it all day long. The improvement was steady and progressive as long as the drug was given. The man has made good recovery. He has not had any symptoms for seven weeks.

Dr. Holmes related a case of his where the tetanus commenced on the eleventh day after the injury or fracture of a finger. He commenced by giving (grs. ss–j) 0.03 to 0.06 grams every three hours (Squibb's). "To control the pain I gave a little morphine. Did not give enough to affect the pupils of the eyes. I attributed the effect on the eyes to the calabar bean. I gave (grs. ss) 0.03 gram doses by the mouth every three hours, without variation, from the time of the first symptom of tetanus to the conclusion of the disease."

Dr. Harcourt: A week ago to-day I was called to see a young girl, sixteen years old, who had fallen over a pail with a lamp in each hand, suffering a severe cut and wounding the thumb across the hand (right hand) down to the little finger, cutting a portion of the deep palmar arch, cutting with the glass a wide and gaping wound. It was two hours after the accident before I saw her. A neighboring physician had first come in response to a telephonic call. We cleansed the wound as well as we could, put in a number of stitches, fastening very closely together in that position.

In thinking of a case recently reported, it came vividly to mind that this would be a good case for tetanus, for the public opinion of the laity and profession is that an injury near the thumb or great toe is very likely to result in tetanus, and because the wound was cut with glass. I put her on potassium bromide and morphia. She took, during the night, (grs. ij) 0.12 grams of morphia, and (℥ij) 60 grams of bromide of potassium. Did not secure any rest until four o'clock in the morning. Next day gave hydr. chloral (grs. x) 0.7 grams. Continued this until Saturday without any symptom of tetanus.

The second day the family physician was called. The case went on favorably until Saturday night, when I received a note saying that "we had called in our family physician," and thus ceased further attention in the case.

General questions were asked and answered, and discussion continued for some time.

Dr. Lee continued by relating his experience with a child which had fallen some ten or twelve feet, and fractured the skull some (5 in.) 12 cm. in length. By using the trephine, he relieved the child and made it conscious. The child died at last, evidently from the effects of septic poison.

Followed by remarks by Dr. Harcourt, Dr. Lyman and Dr. Seeley.

### POISON BY CHLORAS POTASSII.

Dr. Adelia Barlow: I shall attempt to give only a brief outline of three cases, one occurring three years ago, another about a year ago, and the last six months ago. I was very certain that the symptoms were those of poison. The first case

was scarlet fever; a child nineteen months of age. The child had been treated with iron, quinine and potassium. The quinine and iron were given every hour; chlor. potass. every two hours. The saturated solution of chlorat. potass. contained (grs. v) 0.3 grams of the chlor. potass. to (℥j) 4 grams; therefore, about (grs. 60) 4 gms. were given in twenty-four hours.

The child improved under the treatment, and I supposed was out of danger. The mother disliked to give the quinine on account of the bitter taste, and gave it only three times during the day. I requested her to keep up the potassium, as I regarded it a certain specific to that poison (scarlet fever). I did not intend to see the child again that evening, but as I had been in the habit of doing so two or three times a day, I felt as though I would go and see the child, and did so, and found the temperature of the surface of the body increased, the extremities cold and breathing stertorous. There was every evidence of poison, and I put him in a warm bath, gave a large dose of quinine immediately, and ordered brandy. They gave large doses of brandy, until eventually the child came out from under this influence and finally recovered.

In casting about for the cause of this sudden change, I feel it was due to the chlorate of potassium. On investigation, I find in the literature on the subject there was only one case where anything of the kind had been reported. The dose was not unusually large. In the United States Dispensatory it is recommended to give as large doses, and even for a long time as high as (℥iv) 16 grams in twenty-four hours.

The next case was a child about eight months old, as near as I can recollect. In this case it was given in very large doses, half teaspoonful of the saturated solution every three hours. In addition, I had them give brandy with this dose. It got about ten drops to each dose of about (grs. ijss) 0.16 grams of the chlorate of potassa. The child took two or three doses before the symptoms of poisoning occurred, and the same symptoms as in the first case.

The last case was an infant three weeks old, with a case of thrush. It only took one dose of the medicine. The mother saw the medicine was poisonous, and would not give any more.

The symptoms appeared in a very few minutes after the dose was administered.

Since that time I have felt rather afraid of giving chlorate of potassium. Although I had previously given it in the same doses as I had given in these cases, I suppose it might be idiosyncrasia.

Dr. Harcourt spoke of the poisonous nature of chlorate of potassium. He spoke of Dr. Fountain, of Iowa, falling a victim from taking a large dose—(℥ij) 60 grams. It reduces the action of the heart. A case was mentioned where an adult took (℥v) 20 grams, and the pulse was reduced twenty beats per minute. Given in still larger doses, the heart's action might be completely stopped. The recovery under the use of brandy shows the action here on the heart.

Dr. Lyman stated that Dr. Fountain had experimented on the use of chlorate of potassium, and continued to increase the dose until death. It produces suppression of the urine. He also spoke of the effects on the protoplasm of the cell structures.

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Hydrocele treated by Injection of a Solution of Perchloride of Iron.—M. Houzé de l'Aulnoit. (*Bull. de l'Acad. de Méd.*, Feb. 10, 1880, p. 134).

The following is a résumé of a paper read before the academy of medicine, February 10th:

Instead of using a solution of iodine, which, pushed with too much force, may flow back into the scrotal envelopes and cause their gangrene, the author sought to avoid this grave complication by a simple hypodermic injection of a solution of perchloride of iron. The author cites fourteen cases, of which one recurred and all the rest were cured without the slightest induration of the gland. The author uses two drops of perchloride of iron to a (gtts. xx) gram and a half of distilled water; the tunica vaginalis is completely emptied, (℥j) 30 grams of the serous fluid are allowed to flow back, and then the feeble solution of iron causes the desired coagulation.

# Domestic Correspondence.

## ARTICLE X.

## BOSTON LETTER.

MESSRS EDITORS: For a third time I touch upon the admission of women to the Massachusetts Medical Society. The opinion already expressed, that the matter is not by any means settled, received full indorsement at the February meeting of the councilors of the society. The protest of the censors against the October action of the councilors, and to which I referred in my last letter, was presented at the late meeting and convinced the councilors that they had indeed overlooked a vital point, the gist of which I have already explained. It was found that the present society must be consulted, perhaps the legislature as well. A motion to refer the matter to the general society was overborne by the wiser suggestion that the subject should receive more careful consideration in the council. The October vote, which was in favor of the admission of women to the society, was reconsidered, the opposition to this course being notably weak. The whole matter, therefore, now stands where it did before it was introduced to the council. It probably will give rise to a warm discussion at the June meeting of the councilors. In the course of time the subject will be brought before the main society, which, unless I am much in error, will finally shelve it.

The chief bone of contention at the last meeting of the council, was the code of ethics. Two codes were presented. One was the majority code, signed by four of the committee of five. It had once before been submitted to this body, and at that time was roughly handled, and then re-committed to the committee

which was now increased by two members, one of whom was Dr. H. J. Bigelow. During the interval between the meetings of the councilors, Dr. Bigelow took the majority code, pruned and condensed it into the form finally accepted by the council. This was the minority code. Its text has been published in the Boston *Medical and Surgical Journal*, and at the present time is being discussed by the medical journals throughout the country. The contention to which the two codes gave rise in the council brought forth a curious diversity of sentiment. The majority of members from the country favored the acceptance of the long code with its unnecessary detail, and its suggestions of unethical sloughs, the existence of which was so far removed even from the imaginations of many of the councilors, that they indignantly repudiated the necessity of mentioning them. "If," said one gentleman, "members of this society have not the instincts of courtesy and honor, this code will never influence them." "I have been a physician for thirty years," said another, "and until I read this code, supposed I was one of a body of gentlemen. I cannot believe that the practices suggested by the majority code ever existed," etc. The friends of this code felt that elementary instruction in ethics was a paramount necessity to young as well as to many old physicians. Their tone of thought reminded one of the woman who on leaving her children alone, told them not to put beans in their noses, which all of them straightway did so soon as her back was turned, though they never had thought of the trick before. Perhaps the equally unnecessary suggestion in the majority code would have created a like result.

The friends of the minority code justly felt that the mere idea that such puerile instruction and such hints of evil practices as were contained in the majority code were necessary to a liberal profession, was almost an insult. Others there were who felt that since the society had existed in peace for nearly one hundred years without a code, there was no need of one at the present day. But they were willing to fall in with the majority in the acceptance of the concise, sensible minority code, their feeling being very neatly expressed in a recent editorial written by Dr. Geo. B Shattuck: "To the members of the profession in Massachusetts, we wish a pleasant journey under the auspices of this

compact little code, and hope it may prove a pillar of fire to the ignorant Israelite and a Red Sea to the false Egyptian."

In behalf of Dr. Cotting who was the active author of the majority code, it should be said that but for the latter the minority code, in all probability, would not have made its appearance. One is the basis of the other.

For several weeks the medical and lay public have been agitated over the proposed act to regulate the practice of medicine. The bill was the outcome of the discussions in the Social Science Association. After being submitted to the legislature, a committee was appointed whose duty it was to listen to evidence in favor of and against the bill. Very curious, very amusing and very grave developments were the result. The opponents of the bill were charlatans of every ilk. Long-haired spiritualists and clairvoyants of the male sex and unwholesome females of doubtful occupation; fanatics and selfish individuals of every stage of ignorance, appeared as remonstrants. So forbidding were they in mien—so ignorant and unblushing in their arguments, that it was felt that no other testimony in favor of a medical code was necessary. The bill in question united regular, homœopath and eclectic physicians. A board of examining censors, which should represent each of these bodies, was to be formed. Applicants for licenses to practice were to be required to give evidence of a fair medical education, and to present a diploma of graduation from a legalized school. Therapeutics were to be tabooed, so that no point of difference could arise between the censors. In short, the object of the bill was to rid the State of its horde of untaught, dishonest quacks. We are overridden by them. They are a sore upon the body politic—a festering excrescence—a band of thieves. The petition which accompanied the bill, upon its presentation, was signed by very many of our most highly educated and wisest regular physicians. At the outset, the feeling that the bill should pass the legislature—that it was a dire necessity—was very general. Even those who did not agree with all the clauses of the medical act, felt that it would be better to have this bill made a law, immature as it was in some respects, than to permit quacks any longer to abuse the confidence of the credulous. It would be a simple matter to

modify the act at a later day. On the other hand, many members of our regular State society opposed the bill because it recognized homœopaths and eclectics, and opened the way to an undesirable affiliation between them and the regular school, giving the three bodies a common position before the public, as well as equal standing and equal rights. Another objection was that the bill gave the governor and council the power of appointing the censors, instead of leaving it where it should be—in the hands of the proper and only competent party, the medical profession itself. Another objection was that such a bill could no more be enforced than a liquor law. Opposition also arose on the ground that no matter how carefully a bill may be drafted, it will be unsuccessful, because the people will employ quacks, even while knowing that they are so. And so on. You can see how objections might be multiplied. The bill, however, was defeated. A minority medical act was then presented to our general court, and that likewise suffered defeat. So that we not only have no law, but the quacks are more than ever firmly entrenched. But one endeavor to regulate the practice of medicine having been fairly made, and public thought in regard to this matter having been awakened, further, and let us hope more successful, efforts probably will be made to protect the State against the knavery of the swarm of charlatans now at work among us.

The homœopaths are making strenuous attempts to gain admittance, in a professional capacity, to our city hospital, which thus far has been conducted by the best representatives of the regular school. Since the hospital is a city institution, supported by funds drawn from the city treasury, and therefore dependent upon taxpayers who do, as well as upon those who do not, employ regular physicians, it can hardly be said that homœopaths have no right to demand representation within its walls. Their *pro rata* rights, however, are very diminutive. This matter is not yet settled. Indeed, it is merely in embryo. The homœopaths would like to develop a strong opposition to their desire to secure wards in this hospital. In fact, they court this opposition. An editorial in a recent number of the *New England Homœopathic Gazette*, after kindly speaking of members of our school as "self-conceited bigots," makes the claim that opposition has

always aided the homœopathic fraternity, and adds that still more resistance to them on the part of the regular medical faculty would be a good thing. Judging from the spirit of this editorial, a layman would actually think we persecuted homœopaths, when the fact is that one rarely finds a homœopathic journal without its bitter attack on the regular profession. On the other hand, the journals of the regular school seem to have made a tacit agreement to avoid all but strictly necessary mention of the so-called homœopaths, who, with some very rare exceptions, are so untrue to the Hahnemann faith that they do not deserve the name they wear. * *

BOSTON, April 14, 1880.

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CONGENITAL NUCLEAR CATARACT.—Alfred Græfe called attention, at the Ophthalmological Congress at Heidelberg, to a form of nuclear cataract of very firm consistence, which is found in infants, but which, although probably not unfrequently met with, has, in his opinion, not received sufficient notice in the literature of cataract. It is, however, of importance with reference to the proper means to be adopted for its removal. On attempting to needle this form of cataract its density becomes evident from the movement imparted to the lens. The result of the decision is also unsatisfactory, imbibition and absorption taking place only imperfectly. The general opinion of those members who took part in the discussion following the paper was that extraction is the proper method of treating such cases, and that this operation can safely be performed on very young children. In the January number of the *Centralblatt f. Augenheilkunde*, Dr. Just publishes seven successful cases of extraction in infants, in which cases the cataract was of hard consistence. No bandage was used after the operation. He believes that this form of cataract is not congenital, but begins very shortly after birth. This opinion seems, however, to be based entirely on the statements of the mothers.

## BOOKS AND PAMPHLETS RECEIVED.

A Manual of Pathological Histology. By V. Corine and L. Ranvier. Translated with notes and additions by E. D. Shakespeare, A.M. M.D. and J. Henry C. Simes, M.D. 360 illustrations on wood; price $6.50, pp. 784; sheep. Philadelphia: W. C. Lee. 1880.

Montreal General Hospital Reports, Clinical and Pathological. Edited by Wm. Osler, M.D. Vol. I. Montreal, Canada: Dawson Bros. 1880.

Annals of the Anatomical and Surgical Society. Vol. I. 1878–9. Brooklyn, N. Y. Published by the Society, 28 Madison street. 1879.

Brain Work and Overwork. By H. C. Wood, M.D. Price 50c. American Health Primer Series. Philadelphia: Presley Blakeston, 1012 Walnut street. 1880.

St. Bartholomew's Hospital Reports. Edited by W. S. Church, M.D., and Alf. Willett, M.D. Vol. XV. London: Smith, Elder & Co. 1879.

A Manual of Surgery. By W. Fairlie Clarke, M.D. Third edition; 190 engravings, all wood. Price $2.00. New York: G. P. Putnam's Sons. 1880.

Physiological Laboratory, Harvard Medical School, Boston. Collected Papers. 1873, 1879. For private circulation.

Minor Gynæcological Appliances and Operations for the Use of Students. By J. Halliday Croom, F.C.S.E.. Edinburgh: E. & S. Livingstone, 57 South Bridge. 1879. Price $1.75.

Sore Throat, its Nature, Varieties and Treatment. By Prosser James, M.D. Fourth edition, illustrated, hand colored plates. Philadelphia: Lindsay & Blakiston. 1880.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D., F.R.C.P. With notes and additions by Robert R. Harris, M.D. 185 Illustrations. Philadelphia: H. C. Lea. 1880.

A Treatise on Urinary and Renal Diseases, Including Urinary Deposits. By Wm. Roberts, M.D. Third American edition; price $4.00; cloth. Philadelphia: H. C. Lea. 1879.

Skin Diseases, a Manual for Students and Practitioners. By Malcolm Morris. Illustrated, price $1.75; pp. 320. Philadelphia: H. C. Lea. 1880.

Headaches, Their Natures, Causes and Treatment. By Wm. Henry Day, M. D. Third edition, illustrated. Philadelphia: Lindsay & Blakiston. 1880.

A Manual of Auscultation and Percussion. By Austin Flint, M.D. Second edition, revised. Philadelphia: H. C. Lea. 1880.

Observations on Fatty Heart. By Henry Kennedy, A.B., M.B. Dublin: Faunia & Co., 41 Grafton street. 1880.

A Practical Treatise on Nervous Exhaustion (Neurasthenia.) By Geo. M. Beard, A.M., M.D. New York: Wm. Wood & Co. 1880. Price $1.75.

The Microscope and Microscopical Technology. By Heinrich Frey. Translated and edited by Geo. R. Cutter, M.D. Illustrated, 183 wood engravings. New York: Wm. Wood & Co. 1880. Price $6.00.

The Student's Guide to Diseases of the Eye. By Edw. Nettleship, F.R.C.S. Eighty-nine illustrations. Philadelphia: H. C. Lea. 1880.

The Essentials of Anatomy. By Wm. Darling, M.D., F.R.C.S., and Ambrose L. Ranney, A.M., M.D. New York: G. P. Putnam's Sons. 1880.

A Practical Handbook of Medical Chemistry. By Wm. H. Greene, M.D. Philadelphia: H. C. Lea's Son & Co. 1880.

Clinical Lectures on Diseases of Women. Delivered in St. Bartholomew's Hospital. By J. Mathews Duncan, M.D., LL.D. Philadelphia: W. C. Lea 1880.

Dr. Denison's Climatic Map of the Eastern Slope of the Rocky Mountains in Wyoming, Colorado and New Mexico. Denver, Colorado. Price 50c.

Transactions of the Society of the Alumni of the Medical College of Ohio. Cincinnati, Ohio: *Cincinnati Lancet* Press Print. 1880.

Lectures on the Diseases of the Nervous System. By J. M. Charcot. Edited and translated by Geo. Sigerson, M.D. Illustrated. Philadelphia: H. C. Lea. 1880.

Atlas of Skin Diseases. By Louis A. Duhring, M.D. Part VI. Philadelphia: J. B. Lippincott & Co. 1879.

Atlas of Histology. By E. Klein, M.D., F.R.S., and E. Noble Smith, L.R.C.P., M.R.C.S. Parts VIII. and IX. Philadelphia: J. B. Lippincott & Co. 1879.

Atlas of Human Anatomy. Containing 180 Large Plates. Arranged according to Drs. Oesterreicher and Erdl. Explanatory Texts by J. A. Jeancon, M.D. Parts 1, 2, 3 and 4; 75 cents a part. A. E. Wilde & Co. Publishers, Cincinnati, Ohio.

A New Method of Permanently Removing Superfluous Hairs. By L. Duncan Bulkley, A.M., M.D. G. P. Putnam's Sons, New York. 1878.

On the Nomenclature and Classification of the Diseases of the Skin. By L. D. Bulkley, M.D.

Report of the Resident Physician of Brigham Hall, Canandaigua, N. Y.; 1880.

Sixth Annual Report of the Superintendent of the Cincinnati Sanitarium; 1879.

Report of the Condition of the Water in the First Ward of the City of Racine, Wis. By J. G. Meachem, JR., M.D.

# Editorial.

## The Abuse of Medical Charities.

We recur to this subject again on account of the general interest manifested in it by the profession, both here and abroad, and also on account of the intrinsic importance of the question involved.

It is always much easier to point out evils than it is to remedy them; to find fault with existing institutions than to replace them with better ones.

It is evident to us that those who are just now saying most about the abuses in the medical charities of this city, as well as in New York and elsewhere, have a very inadequate idea of the real causes of these abuses. In nearly all the articles and reports that we have seen on this subject, the medical charities, by which is chiefly meant free dispensaries, are reported as being run in the interest of the medical colleges and most of the abuses are claimed to arise from the efforts of college faculties to increase their clinical material. That we do not misrepresent, the following paragraphs from a recent report will show. The report to which we allude says:

"They (the committee) find, on closer personal investigation, that at least one-third of the patients applying at dispensaries for treatment are in no way entitled to it, and that there is no adequate reason why medicine should be furnished to at least one-half of the remainder.

"They find that the task of attending the sick poor is, by almost common consent, relegated indirectly to the colleges, which are not slow to take advantage of the clinical material thus afforded, and which, having extended this branch of their

work beyond all reasonable bounds, are in no small degree responsible for the present deplorable condition of affairs.

"Your committee do not need to study this subject long to see that self-interest is at the bottom of this charitable display and that it matters little to the colleges, *i. e.*, to the individuals composing their faculties, who among the remainder of the profession suffer, so long as they gain by it.

"They find that a somewhat extensive 'ring' controls the administration of medical charity, and that within that 'ring' a few older professors dominate over all the rest. Nor is this the case only in regular circles. It holds just as true among the irregulars. Abundance of evidence convinces them that the trustees and officers of these institutions, both colleges and dispensaries, do not sympathise with any notion to correct the abuses alleged."

We will not stop to comment on the gravity of these plain personal accusations nor upon the modesty of those making them. Neither will we quote similar direct charges against the colleges from the *Medical Record* of New York; but will proceed directly to a brief consideration of the facts; and so far as abuses exist, try to find who is responsible for them and how they are to be remedied. If our memory is not entirely at fault, both the dispensaries in the West and North divisions of this city were organized and maintained for years without the most remote connection with any medical college; indeed when no medical college existed in either of those divisions of the city. They were organized, managed and attended exclusively by the younger class of physicians, who were ambitious to relieve the sick poor, bring themselves into public notice and increase their professional reputation. So far as our knowledge extends, the North Side Dispensary still remains wholly disconnected from any medical college. Since the erection of the new County Hospital in the West Division and the location of the Rush Medical College in the same vicinity, the West Side Central Dispensary has been accommodated with rooms in the basement of the college buildings, but we have failed to see, in the list of names making up the dispensary medical staff, those of any of the older professors; or indeed of any except those of the younger class of medical men, who both at-

tend the patients and give what clinical instruction the institution affords. It is true that the South Side Free Dispensary was organized and sustained for several years by members of the faculty of the Chicago Medical College, but under a legal incorporation entirely distinct from that of the college, and with a corps of attending physicians and surgeons composed almost entirely of the younger members of the profession, two-thirds of whom had no official connection with the college whatever.

With the exception of one or two members belonging to the gynæcological department, the entire dispensary staff is now composed of the younger class of practitioners.

If it is true, as above stated, that the three regular and principal free dispensaries in the city are now, and always have been, served almost exclusively by the younger class of practitioners, a large majority of whom are not members of any college faculty, whose fault is it if one-third of the whole number received and prescribed for were not entitled to such aid? Will it be pretended that the young practitioners serving these several institutions were required by the medical colleges or by any rules of the dispensary boards of trustees, on which some one or two of those "older professors" might have had a place, to examine and prescribe, *nolens volens*, for all who might present themselves whether rich or poor? Or was every member of each dispensary staff at full liberty to exercise his own judgment and promptly turn away any that he might feel sure were able to provide for themselves?

Not only have these attending physicians been thus entirely at liberty to discriminate and restrict their services to the really needy, but the principal founder of the South Side Free Dispensary, who happens to be one of the oldest professors in the city, and who made it a donation, the income from which defrayed a large part of the expenses of the institution for several years, stipulated in writing as the condition on which the donation was made, that the benefits of the dispensary should be *restricted entirely to the actually poor.*

If it is true that one-third of those who have been receiving aid at the several dispensaries are not actually too poor to provide for themselves, then certainly there is a forfeiture of all further

claim on the donation alluded to. And yet, who knows but that in the imagination of the young brethren from whose report we have quoted, that same old professor is one of that "extensive ring controlling the administration of medical charity" and even one of the "few who dominate over all the rest." One thing is very certain; and that is, if the trustees of the several dispensaries and charitable medical institutions of this city have erred in the direction of allowing their benefits to be extended to many who were not needy, their error consisted in leaving the matter of discriminating altogether to the members of the attending medical staffs, composed chiefly of young practitioners.

The allegation that the bestowment of indiscriminate medical charity is favored by the faculties of the colleges for the special purpose of increasing their clinical material, is hardly sustained by the facts, so far as relates to the regular schools at least. According to a recent annual report from the trustees of the South Side Free Dispensary, occupying rooms in the basement of the Chicago Medical College, the whole number of visits made by patients during the last year was 11,759; at least three times as many as could be used for any useful clinical purpose by that college.

The number visiting the Central Free Dispensary at the Rush Medical College is still larger. When it is remembered that each of these colleges has ample facilities for clinical instruction in the hospitals with which they are connected, it will be seen that there is certainly no need of their favoring any abuse of medical charity for increasing their clinical material. We have written the foregoing, not from any personal feeling, but simply to show that the outcry against the college faculties, the trustees of dispensaries and the "older professors" was neither founded on facts nor calculated to remedy the abuses complained of. That every medical charity in the city is imposed upon more or less by persons who are able to provide for themselves, we have no doubt. And such will continue to be the case so long as such institutions exist and human nature remains unchanged.

Neither the members of college faculties, nor of the boards of dispensary trustees can stand sentry at the doors to keep the undeserving out. No more can it be expected that the members

of the attending staff on duty, will keep up a constant effort at discriminating between the actually needy and those not needy. It is an ungracious kind of work that very few are willing to do day by day. Besides there is no visible basis in dress, good looks, cleanliness, or intelligence, on which one can rely as a mark of distinction between the two classes. To require every applicant to bring a card certifying that he or she is needy, signed by some person presumed to know the circumstances of the applicant, would do some good. But the facility with which such signatures are obtained, and the ease with which the cards can be passed from one person to another, especially under fictitious names, renders this expedient of but limited practical worth. To charge all applicants a small fee, as has been proposed and tried in some quarters, would reduce the number of applicants in a marked degree. But it would reduce the column from the wrong end, by excluding the absolutely destitute who are most needy of all, while those not needy but really able to pay the minimum fees of physicians, would be all the more free to come and avail themselves of the small fee system. The truth is, the abuses so much complained of are inherent in the system of establishing medical charities to which the sick can resort for free medical advice and medicines. And as we stated in a previous number of this journal they cannot be effectually removed except by abandoning the system itself.

And when our younger professional brethren have practically wrestled with the problems involved in every aspect that human ingenuity can devise for thirty or forty years, they will come to the same conclusion. As the report from which we quoted at the commencement of this article, ends with a series of resolutions touching various topics, and which appeared to meet the approval of the society to which the report was read, we append them for the benefit of our readers. They are as follows:

*Resolved*, That this society holds that the trustees or managing officers of dispensaries owe it to themselves and the profession at large to adopt such means as shall most effectually prevent the wholesale abuse of medical charity.

It is understood that this resolution is not intended to militate

against the proper administration of medical charity, but against gratuitous services to those not entitled to them.

*Resolved*, That when druggists exceed their proper function as dispensers and chemists, and act in the capacity of prescribers, they usurp a position to which they are not entitled either by experience, knowledge or license, and that this society denounce all such as unworthy of the confidence of the public or the business recommendation of the profession, and advises that its members sedulously avoid any relations with them.

*Resolved*, That this society holds that a physician's prescription does not become public property after passing out of his hands, and should never be either repeated for the same patient or duplicated for another, except by the usual authority of the prescriber.

*Resolved*, We see no justice in treating the clergymen or their families gratuitously, unless they should become objects of charity.

*Resolved*, That the expenses of attending the sick poor, especially at their houses, ought to be borne as all other public expenses are; that physicians should be selected for this work without reference to personal feeling, but simply on the score of ability and character, and that they should be paid, from the public treasury, a sum sufficient to secure adequate and proper service.

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Infantile Convulsions.—(*Archivio Clinico Italiano*, *No.* 3, 1880.)

Prof. J. Simon, when the children are no longer able to swallow, evacuates the bowels with an abundant simple or oily enema and afterwards injects the following:

| | | |
|---|---|---|
| Musk | (gr. ij) | 200 |
| Camphor | (ʒj) 1 | |
| Hydrate of chloral | (gr. v) | 300 |
| Yolk of egg | (ʒj) 1 | |
| Distilled water | (℥v) 150 | |

# Notes and Extracts.

## Local Sanitary Conditions and Epidemics.

In the number of this journal for March we copied an article from Supplement No. 3, *National Board of Health Bulletin*, giving results of investigations concerning the sanitary or unsanitary condition of the water supply of many places in the South, where yellow fever had prevailed in the summers of 1878–9. Regarding everything that can add to our knowledge of the local sanitary conditions as of paramount importance in the study of etiology, and following up the same general purpose, we shall copy below somewhat lengthy extracts from a report, in the same Supplement, on the "Sanitary History of Memphis, being based upon a house-to-house inspection of the city, between November 24, 1879, and January 3, 1880, made under the direction of the National Board of Health."

This inspection, made by parties carefully selected for their fitness to do the work, almost immediately after the prevalence of a very severe epidemic of yellow fever two summers in succession, may be regarded as fairly representing the condition of the soil, water, drainage, sources of pollution, etc., that actually existed during the two preceding seasons. And by comparing these with the meteorological conditions during the same period, as recorded for the Signal Service Bureau of the general government, we are enabled to study successfully the bearing of the entire local sanitary conditions, not only on the original progress of the epidemics, but also on the ratio of sickness and mortality from the prevalence of ordinary diseases. The latter, though attracting less public attention, is really more important to the permanent welfare of the people than the former. Severe epidemics rarely

affect communities, except at long intervals, and only for a brief period of time; while a high ratio of mortality, from ordinary diseases, shows a constant sacrifice of life that, in the aggregate, far exceeds that produced by the most severe epidemics. This is fully demonstrated by the facts embodied in the table of mortality for five consecutive years, given below.

That table shows an annual prevalence of dysentery, diarrhœa, cholera infantum, pneumonia, phthisis, etc., equal to the most densely populated and unsanitary cities, either in this country or Europe; the annual death rate for the non-epidemic years being 35 per 1,000 of the population. And more than fifteen per cent. of this extraordinary ratio of mortality was from pneumonia and phthisis. But we will let the facts, as given in the report, speak for themselves, by copying as follows:—[Ed.

The city of Memphis, at present the "taxing district of Shelby County," is situated in Shelby County, Tennessee, latitude 35° 7′ north, longitude 90° 7′ west, with a greatest altitude of 287.44 feet above tide-water in the Gulf of Mexico.

### POPULATION AND GROWTH.

At this time [1852] the population was estimated at less than 10,000, a rapid advance being claimed for the two subsequent years, so that in 1854 a census showed 12,867 inhabitants, which was increased by the close of 1857 to an estimated population of 25,000, this rapid growth being attributed to the completion of the first portion of the Memphis and Charleston railroad. Although there was a large increase between 1850 and 1860, this latter estimate was not borne out by the figures of the eighth United States census, which gave Memphis a population in 1860 of 22,621, as against 8,841 in 1850, by the same authorty. The ninth census (1870) placed the population at 40,226; but it is important to note, in this connection, that the city limits were materially enlarged in 1857–'68, so much so that they embraced 4,114 acres at the time when the ninth census was taken; and much of this additional area was as thickly settled as the average of the former or present area. During the session of the State legislature of 1871 and 1872 another change was made, and the area was reduced to the present city limits, a reduction

which cut off 37 + per cent. of the territory and 39 + per cent. of population. This would make the population of 1870, contained within the area of the present city limits, 24,253, and it is this figure, and not 40,226, which should be taken in any estimate of the growth of the city within the past decade.

### PRESENT POPULATION.

On the 1st of January, 1880, the population of Memphis, as shown by the house-to-house inspection returns, is 30,659, showing an increase of nearly 26.4 per cent. since 1870. Of these there are 16,705 whites in 3,775 families, an average of 4.42 persons in each family, and 13,954 colored in 3,609 families, an average of 3.87 persons to each family—a mean average of 4.15 persons to the aggregate of 7,384 families. These occupy 5,584 of the 9,386 dwellings accounted for, giving an average of 5.49 persons to each occupied dwelling. In 1870 there were 5.14 persons to each family (white and colored not separated), and 6.28 persons to each dwelling. The reduced average of occupants to dwellings is readily enough accounted for by the large number of buildings erected during the decade—an increase equal to nearly 54 per cent., while the increase of population is, as above shown, less than 27 per cent. An explanation of the reduction in the number of persons to a family is more difficult, and is complicated with questions involving a study of the epidemics of 1873, 1878, and 1879, of the changed social status of the colored people, and other factors, not, probably, beyond the scope of a "sanitary survey," but for which no opportunity has yet offered.

### AREA AND TOPOGRAPHY.

An area of 2,590 acres is embraced within the present city limits, the outlines of which approximate the figure of a truncated right-angled triangle (or trapezoid), the truncated extremity (8,175 feet) being the northern boundary; the perpendicular (13,050 feet) the east boundary; the base (11,625 feet) the southern boundary; while the hypothenuse (17,000 feet) is the water frontage on the Mississippi river.

The site of Memphis and the country immediately surrounding it is the Fourth Chickasaw Bluff, a loess formation, consisting

of a fine siliceous loam, of a rich chrome yellow or buff color. This is superimposed upon a varicolored stratum of sands and gravel, locally known as the "orange sand," a southern extension of the drift formation, and immediately beneath which is found the La Grange group of clays and sands of the Tertiary period. The "orange sand" stratum is nearly horizontal, so that it is reached at varying depths according to the thickness of the loam above it.

The bluff formation is well defined along the southern half or two-thirds of the river front of the city, where it presents a bold, almost perpendicular western face, cut through by street openings to the levee. Its greatest elevation is in the southwestern section (on Tennessee street, near the corner of Talbot), where it rises to a height of 67.9 feet above the highest water mark, that of 1867. From this point, along the river front, it gradually descends toward the north, until it is lost in the valley of Bayou Gayoso, some 1,500 feet south of the north boundary. Toward the south the inclination is much less, so that at the south boundary near the river, the highest bluff level is still 57 feet above high water. North of Bayou Gayoso the bluff again rises, but recedes from the river at a much greater angle. Extending back (east) from the river the surface is undulating, with the long axes of the swells and depressions in general north and south lines, except in the northern portion ("Chelsea," "Scotland," and the upper part of "The Pinch"), where the long axes run nearly east and west.

### NATURAL DRAINAGE SYSTEM.

Through the depressions flow a series of bayous which form the natural drains of the area, only a narrow strip along the river front draining into the Mississippi river, except in the extreme northwestern portion of the city. Of these bayous the Gayoso and Quimby are the most important. Bayou Gayoso (with its east and west forks, and its tributaries, the Little Betty and De Soto) drains the southern and central divisions of the city, and flows in a general northerly direction until it it receives Bayou Quimby with the drainage of the northern division, when it pursues a northwest and west course, emptying into the Wolf river

at a point about 2,500 feet above the junction of the latter stream with the Mississippi.

This natural drainage, flowing mainly from south to north, is still further supplemented by minor undulations running at nearly right angles with the above. As the original conformation of the site has not been materially changed, these undulations afford lateral drainage communicating with the main system, and, with the exception of the localities to be hereafter specified, this surface drainage is ample, even for the heaviest rainfalls.

The average width of the bayous within the city limits varies from ten to twenty-five feet, measured at about mid-height of the banks, and the volume of water varies with the rainfall and stage of water in the Mississippi.

There are but few springs emptying into the bayous, so that their contained water is mainly made up of the surface drainage, and of what is locally known as the "sipe" water—water which has penetrated below the surface, and gradually oozed out through the banks of the bayous. During high water in the Mississippi the river water enters the bayous and "backs up" the contents of the latter, this "backing up" having been known to extend for over a mile through the most densely settled parts of the city, and leaving behind it, in the bed of the lower part of the bayou, accumulations of mud or silt of five or six feet in depth. As the stage of water in the river is high enough to obstruct the bayou for four or five months in the year, the current is sufficiently retarded during that period to allow of a large deposit of organic matter upon the banks of the bayous, which rapidly decomposes and becomes offensive as the water falls and exposes it to the action of the sun and air. In addition to this source of pollution, there are a large number of privies, built directly over the bayous or upon their banks, the contents of which are discharged directly into the waters, while the surface and sipe water, for a distance of several hundred feet in many localities, is also contaminated with fecal filth from surface privies, overflowing and leaky vaults, etc. A five-foot sewer, which gathers the surface drainage of an area of some 140 acres, on which is the city hospital, and several small private sewers also contribute their quota to the fouling of Bayou Gayoso.

Including the city, an area of upward of 5,000 acres is drained by the bayou system; the total length of Bayou Gayoso, from Wolf River to its head, being five and a half miles, with an inclination of 1 foot in 180 in the city limits; the total length of Bayou Quimby, from its junction with Bayou Gayoso to its head, is a little less than four and a half miles, with an inclination of about one foot in 140; and the total length of Bayou De Soto, from its junction with Bayou Gayoso to its head, is two and four-fifths miles, with a slightly greater inclination than that of Bayou Quimby.

RIVERS—THE WOLF AND MISSISSIPPI.

Wolf river enter the city in the extreme northwestern section, constituting practically, its northwestern boundary for an extent of about 4,000 feet.* It is an exceedingly tortuous stream, flowing through cypress swamps and cane-brakes for about 65 miles, and receives the Loosa Hatchie river just at the northern boundary of the city. Like the bayous, it is "backed up" when the Mississippi rises more than 15 feet above low-water mark, and it is asserted that at such times the foul waters of the bayou also enter and pollute it. A tannery and a group of slaughter-houses, located about 300 yards below the water-works, discharge blood, offal and refuse into the stream through a small "run," upon whose banks they are built. It is also stated that when this "backing up" occurs such material is necessarily carried up to the pumps. Aside from its malarial influence, derived from the "bottom" lands through which it flows, the chief sanitary importance of the Wolf consists in its being, to a large extent, the source of the water supply of the city, as above intimated. Its waters have been analyzed by Assistant Surgeon Smart, United States Army, and detailed information concerning it will be found in his report upon the water supply of Memphis.

It should be added, however, that personal observation does not confirm the statements made as to the pollution of the water supply by the "backing up" of the bayou and river. With a

* In the northwestern portion of the city a section of low alluvial land about 300 acres in extent is separated from the first and ninth wards by the Wolf river. This is subject to overflow during high water, is partly cultivated in cotton, has one white and twelve or fourteen colored families (who are obliged to vacate during high water), and possesses no features of sanitary interest apart from those which characterize the Mississippi "bottom" generally.

stage of about 21 feet of water in the Mississippi, and while the bayou was still "backed up," a decided under current was found in the Wolf opposite the water-works. It is obvious that any rise in the Mississippi sufficient to dam up the waters of Wolf river would also dam up the contents of the bayous and of the "run" above alluded to; and that as the water falls the outward current in the Wolf will be re-established, carrying out with it the retained contents of the bayous and "run." The contents of these latter can only be carried up Wolf river to the water-works when to a suitable stage of water in the Mississippi shall be added a local rain (confined to the watershed of the bayous) heavy enough to swell the volume of water discharged by the bayou beyond the volume of water contained in the Wolf, and sufficiently greater to overcome the fall in the latter stream from the water-works to the mouth of the bayou. Remote as such a coincidence would seem to be, it is stated to have occurred twice within the past ten years. There is, however, reason for believing, from personal observation, that the surface water of the Wolf may be carried up stream for a considerable distance, even when the deeper water is flowing out. Whether this ever occurs to such an extent as to carry the foul waters of the bayou and "run" up to the pumps it is not presumed to assert.

The extreme range between high and low water in the Mississippi at Memphis is about 35 feet, and a gradually shelving shore of varying extent is thus alternately covered and exposed. At the date of inspection, Dec. 16, 1879, with a stage of 19 feet 10 inches above low-water mark, this shore had a greatest width of 258 feet from the foot of the bluff at Jefferson street. Extending north from Jefferson street to the mouth of Wolf river (2,687 feet measured from center of Jefferson to center of Jackson street, along the line of Front Row) the water covered this sloping shore, to the foot of the bluff, with the exceptions noted in the reports of a special inspection of the river front (*q. v.*). Extending south from Jefferson street the bluff has been cut away so as to increase the depth of the shore, and this space, known as "the levee," had a varying exposure of from 150 to 260 feet between the water's edge and the foot of the bluff until the line of Beale street was reached (nearly the same distance as that de-

scribed above). At Beale street the water again came up to the foot of the bluff, but from this point south to the city limits there was an irregular width of from 20 to 200 feet.

### THE WATER FRONT.

These three divisions of the river front present strongly marked contrasts. The northern one, beginning at Wolf river, has a low, flat area of about four acres ("Happy Hollow") partially submerged during high water, and receiving a considerable portion of the filthy surface drainage of the northern end of the "Pinch," one of the most objectionable quarters of the city, as well as the polluted discharge from the bayous. The bank is sandy and easily washed, so that mattress protection is necessary. From Market street south to Jefferson the bluffs gradually rise, varying in height from four to twenty-five feet, and along this extent there are gullies, "wash-outs," deposits of fecal filth, the outlets of box-drains and culverts, and the accumulations of a public "dump," including everything offensive, from street sweepings to the contents of privy vaults, which, up to May, 1879, were carted to the crest of the bluff at the foot of Washington street, and thence allowed to find their own way to the river. The central division consists of the "levee," so called, an improved area paved with stone, clean and in good condition, with the exception of such nuisances as arise from the want of public latrines for the use of the roustabouts, stevedores, rivermen, etc. As the river falls after high water a deposit of mud covers the "levee," but this is washed from the well-paved and steep slope by the first rain. The southern division reproduces many of the evils of the northern one, aggravated by the location of the present public "dump-boat" at the foot of Beale street, a decided nuisance at this date.

The details of the conditions above generalized are embraced in the special report previously alluded to, the substance of which was conveyed to the proper authorities through the committee on the sanitary survey on the 18th of December, 1879, supplementing previous reports on some of the conditions which had been already submitted on November 10 and December 13.

SEWERAGE.

There is practically no sewer system in Memphis, the four and a half miles of existing private sewers having only two hundred and fifteen connections in all. And while the natural facilities for surface drainage are ample, they have not only not been fully utilized or preserved, but in many instances they have been materially impaired, and in some entirely destroyed, by changes in the original conformation, or by the character of the street conservancy. With an extremely retentive soil this obstruction of natural drainage renders unpaved streets and alleys almost impassable during wet weather, and readily accounts for the large proportion of damp or wet cellars and basements. These causes —namely, the absence of sewers and of subsoil drains and the obstructed surface drainage—also affect unfavorably the areas of "made land," although these are not numerous or extensive. (Such areas are described in the summary description of the wards.)

STREETS AND ALLEYS.

There are sixty-seven miles of streets and thirty-five miles of alleys within the city limits. West of the bayou these run nearly with the cardinal points of the compass, the variation being a little east of north and south of east. In the northeastern section this variation is more decided, but in the central and southern sections the same general lines are preserved on both sides of the bayou. Details as to width, paving, and condition of streets, alleys, and sidewalks will be found in the ward summaries.

BUILDINGS—MATERIAL, AGE AND CHARACTER.

Of the 7,202 buildings of all kinds (this is exclusive of outhouses) within the city limits, 72 per cent. are of wood, 27 per cent. of brick, and the remainder of stone (13) and iron (1). In the strictly residence portion of the city—in fact, in all but the third and fourth wards—the large majority of the buildings are of one story, there being (with the exceptions above noted) 4,188 dwellings of one story, as against 2,198 of two or more stories. Many of the structures returned as "occupied dwellings" are, in effect the cabins of one or two rooms which, prior to 1861–'62, constituted the slave-servants' quarters. Of these (one or two

roomed dwellings) there are 1,209 returned; and this item is of consequence in connection with the remarks which follow concerning the condemnation of buildings.

About 10 per cent. of the total number of all buildings have been erected within the past five years, and nearly one-fourth of the total number were erected between 1870 and 1875. These buildings, 2,524 in number, embrace the large majority of the really healthy habitations, and substantial, well-ventilated and properly lighted business blocks. A large number of buildings erected between 1865 and 1870 are mere shells, with thin, insecure walls, flimsy and badly fitting wood-work, and inadequate ventilation and lighting. There are few exceptions to the indictment of this class. Of the remainder (about 40 per cent. of the total number), the ages range from fifteen to fifty years, and there are few of these which do not require radical alterations in order to justify their retention for occupancy.

One of the most important defects noticeable in dwellings is the want of subventilation, 1,453 dwellings being built so close to the ground as to have no air-space beneath the floor; 2,030 others have insufficient or obstructed subventilation; and only 2,204 (about two-fifths of the total number) comply with the proper requirements in this respect.

### CELLARS AND BASEMENTS.

There are 1,515 buildings with cellars and basements, and of these over one-half (786) are badly ventilated, damp or wet, many with water standing from two to eighteen inches deep on the floors, and with walls soaked by sipage from the surrounding polluted soil. As very few of these cellars are more than 9 feet deep—fully one-half being between seven 7 and 8 feet, and about one-fourth being less than 7 feet deep—any general system of sewerage and subsoil drainage will remedy this latter defect.

In the two principal business wards of the city (the third and fourth) more than one-third of the buildings were found to have privy vaults in cellars or basements, Many of these buildings are upward or twenty years old, and the cellars contain from one to five vaults each, the accumulations of an average of a quarter of a century being imperfectly covered over with ashes or earth.

Not infrequently the rain-water cistern, from which water for all purposes is used, was found surrounded by these vaults with the walls almost touching each other. A few instances are to be found in every part of the city; but the majority are grouped where they are likely to do the most harm—in the densely built and oldest regions.

Among the minor subterranean defects found were 426 cellars and basements fouled by accumulations of decomposing organic matter, infected material, etc. (The past tense is here used advisedly, since much of this has been already remedied through the efforts of the board of health, which has caused most of these cellars to be cleansed and whitewashed and the vaults emptied, disinfected and filled up.)

### SOIL AND WATER POLLUTION.

So much has been written and said, *ad nauseam*, of the privy system of Memphis that it is proposed to dismiss it here in a very summary manner, and this the more justifiably, since there is a strong probability of its soon being numbered among the things of the past. At the date of inspection there were found nearly 6,000 sub-surface vaults in use. These varied from mere shallow pits, without any lining, to brick vaults of forty feet (and upward) in depth. Considerably less than one-third were sufficiently remote from living-rooms, while the remainder were placed at all degrees of proximity, even to being, as already stated, grouped in cellars. Of the total number, 3,607 were in a foul condition. The extent of the soil pollution from this source may be better inferred when it is understood that the above figures do not include a large (probably equal) number of disused, but unemptied, vaults, the contents of which were only imperfectly covered by a shallow layer of ashes or refuse.

When it it is considered that of the 4,744 cisterns and wells which furnish the large share of the water consumed, 3,408 are within contaminating distance of the known locations of these vaults, and that a large proportion of such cisterns and wells are known to be defective, enough will have been said on these points to indicate some of the causes of the high death-rate of Memphis.

MORTALITY IN MEMPHIS.

An analysis of the mortality records of the health office for the past five years furnishes the following table, which is of interest in this connection:

| Causes of death. | Years. | | | | | Totals. |
|---|---|---|---|---|---|---|
| | 1875. | 1876. | 1877. | 1878. | 1879. | |
| Malarial fever | 127 | 99 | 121 | 126 | 68 | 541 |
| Typhoid and typho-malarial fever | 23 | 37 | 41 | 19 | 18 | 138 |
| Cerebro-spinal malarial fever | 16 | 14 | 17 | 18 | 1 | 66 |
| Yellow fever | 0 | 0 | 0 | 2,779 | 497 | 3,276* |
| Erysipelas | 6 | 1 | 6 | 1 | 12 | 26 |
| Dysentery | 66 | 79 | 63 | 30 | 25 | 263 |
| Diarrhœa | 30 | 67 | 61 | 46 | 36 | 240 |
| Cholera infantum | 52 | 21 | 31 | 19 | 32 | 155 |
| Scarlatina | 1 | 49 | 17 | 1 | 0 | 68 |
| Diphtheria | 5 | 8 | 13 | 11 | 1 | 38 |
| Croup | 13 | 4 | 5 | 6 | 11 | 39 |
| Whooping-cough | 25 | 7 | 1 | 20 | 1 | 54 |
| Small-pox | 8 | 0 | 0 | 0 | 0 | 8 |
| Measles | 0 | 13 | 2 | 35 | 0 | 50 |
| Pneumonia | 88 | 87 | 108 | 83 | 136 | 502 |
| Phthisis | 172 | 159 | 180 | 176 | 143 | 830 |
| All other diseases of lungs | 18 | 25 | 28 | 34 | 10 | 115 |
| Diseases of the heart | 27 | 27 | 28 | 29 | 26 | 137 |
| Diseases of the urinary organs | 2 | 6 | 11 | 1 | 5 | 25 |
| Tetanus | 10 | 11 | 13 | 7 | 5 | 46 |
| Puerperal diseases | 17 | 6 | 17 | 14 | 21 | 75 |
| All other causes | 468 | 308 | 491 | 552 | 520 | 2,339 |
| Totals | 1,174 | 1,028 | 1,454 | 4,007 | 1,568 | 9,230 |

From the foregoing it will be seen that, exclusive of the mortality from yellow fever, the average death-rate of Memphis is thirty-four per thousand, assuming the average population for the past five years to have been 35,000. On the census of 1879 the total mortality for that year was fifty-one in the thousand, and exclusive of yellow fever it was thirty in the thousand. The average death-rate from all causes during the three non-epidemic years was thirty-five. Of the total number of deaths during the past five years over fifteen per cent. were due to phthisis, pneumonia, and other diseases of the lungs, the excess being fairly attributable to defective sub-ventilation of dwellings and to an undrained retentive soil. Excremental and malarial diseases

caused nearly fifty-seven per cent. of the total, and this exccess may be set down as due, in great measure, to soil and water pollution.

Under a reasonably efficient sanitary *régime*, with a good sewerage system and pure water supply, the average death-rate of the city should be reduced to about twenty in the thousand within the next lustrum. Until the social and moral status of the colored population is materially improved, it will probably be too much to expect that the theoretical standard of seventeen in the thousand can be attained.*

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* Without any special relevancy to the above, but simply to record the information, the following data concerning epidemic diseases in Memphis are here appended. These have been obtained from the note-books of physicians and from other sources among the citizens, and are believed to be trustworthy so far as they go.

YELLOW FEVER.—First epidemic in 1828: distributed pretty generally throughout the village, at that time occupying the bluff near the Mississippi, and mainly north of Market street; over 150 cases in a population of about 700; mortality, 56 recorded deaths. Second epidemic in 1855; confined principally to area south of Union street (South Memphis and Fort Pickering,) but followed the bayou on both sides, north and west to Wolf River; estimated number of cases 1,250 in a population of about 13,000; mortality 220 (estimated.) Third epidemic in 1867: included area of epidemic of 1855, and extended north and east; estimated number of cases, 2,500 in a population of 36,000; mortality, 500 to 550. Fourth epidemic in 1873; spread pretty generally throughout the city, but more severe in northern portion ("The Pinch," "Chelsea," and eighth ward,) and extended east beyond city limits; estimated number of cases, 7,000 out of a population reduced by flight to between 15,000 and 20,000; mortality, recorded between September 14 and November 9 (last death), 1,244; estimated total mortality from August 10 (first death) upward of 2,000. Fifth epidemic in 1878; no portion of city or suburbs exempt; number of cases 17,600 out of remaining population of 19,500: mortality, 5,150 recorded deaths. Sixth epidemic in 1879; area as general as in 1878, except in localities depopulated by flight or removal to camps; total number of recorded cases between July 9 and November 15 (cases occurred in December) 1,532 out of an estimated remaining population of 18,500, of which number 75 per cent. were "protected," in the sense of having previously had the disease: total recorded mortality, 485. The disease was brought to the city in several other years, but was not communicated to the inhabitants. This was notably the case in 1853, when upward of 80 imported cases were treated in hospital and boarding-houses without any spread.

CHOLERA.—First appearance in the winter of 1832-'33; number of cases and mortality unknown, but it is described as having been severe and general. Second epidemic in 1835; said to have been between 300 and 400 cases, with a mortality of about 15 per cent.; no data of population at this time, but probably about 2,400. Third epidemic in 1849: estimated number of cases about 1,200 in a population of less than 8,000; particularly severe among river boatmen and the foreign population in "The Pinch"; mortality said to have been about 33 per cent. Fourth epidemic in 1867; about 600 cases, mostly among negroes; mortality unknown; disease most severe along Causey street and vicinity (line of contact of fifth and sixth wards.) Fifth epidemic in 1873; about 1,000 cases, with 276 recorded deaths; entire population is said to have been afflicted with choleraic diarrhœa.

In addition to the foregoing, small-pox was epidemic in 1835 and in 1873; influenza in 1842; dysentery in 1844 (local, confined to "The Pinch," about 400 cases, and between 40 and 50 deaths;) jaundice, erysipelas, and puerperal fever in 1853; and dengue in 1860. Prior to 1850 diarrhœal diseases were excessively prevalent, attributed to use of well and spring water: claimed to have diminished on substitution of cistern water.

# Selections.

A FOURTH YEAR IN THE MEDICAL SCHOOL. By Professor JAMES C. WHITE, M.D., Med. Dept. Howard Univ'y.

Ten years have not yet passed since the medical department of the University took that great step which has so largely changed the character of medical education in this country, and each succeeding year has demonstrated more positively the advantages of the measures then adopted. The classes have grown constantly larger; and the quality of the students has improved in the same degree, nearly one-half of them being at present graduates in arts or sciences. The complete success of this reform has not failed to impress itself upon other medical schools in all parts of the country, and some of the most important of them have adopted and are about to adopt the "Harvard plan." In the meantime the school has not been content to rest upon the merits of its first step. As soon as practical it instituted an admission examination, so as to exclude at the start that class of students who would approach the study of medicine unfitted by any previous mental training; and it has just now materially added to the efficiency of this preliminary test. It has continuously sought to enlarge the scope, to systematize and to improve the quality, of its instruction, and has been constantly adding to its corps of instructors, which now number over forty. But with this great increase in the amount of teaching, a serious obstacle arose—a want of time in which to teach properly. It had become, in fact, an impossibility for the student to profit by all the instruction offered; and some of the special branches taught, those not considered essential in the requirements of graduation, were largely and necessarily neglected.

The medical faculty has long recognized the necessity of adding another year to the curriculum. America is the only civilized country which gives the degree of doctor in medicine in a three-years' course of study. In how much less time, and on what slight requirements, many of her colleges confer this title, I am ashamed to say. Several of the European universities require six years of study. But the establishment of a fourth year was felt to be also a serious matter in the face of the strong rivalship of schools so lax in their requirements in this regard; and it has not seemed practicable before the present full financial prosperity of the school was assured, and its extensive system of general and special teaching thoroughly organized, to attempt this additional step in medical education. Even now the faculty does not deem it wise to make the four-years' course obligatory at the start, but has left it optional for the present to the student, whether he will continue to attempt to crowd an impossible amount of work into three years, or spread his studies over the longer period in a proper order, and reap the full advantages of all the instruction which is offered him. There can be no doubt that the latter course will be chosen by that large class of students who are constantly disappointed in their endeavors to do justice to all the teaching open to them. To those, however, who are unable to avail themselves of this extended plan of education, the degree of Doctor of Medicine will continue to be given, until further notice, at the end of three years of study under the conditions hitherto observed, and there will be no diminution in the amount, or change in the arrangement, of instruction hitherto given in this course.

The faculty, however, urgently recommend the following plan of study to all students desiring a thorough medical education:

FIRST YEAR.—The studies of the first year are to be, as hitherto, anatomy, physiology and general chemistry; and there will be an examination upon these at the end of the year.

SECOND YEAR.—During the second year the studies will be topographical and practical anatomy, pathological anatomy, medical chemistry, and materia medica; and an examination will be held upon them at the close of the year, general anatomy excepted.

THIRD YEAR.—At the end of the third year there will be an examination in therapeutics, theory and practice, obstetrics, and surgery; and at the close of the

FOURTH YEAR, in clinical medicine, clinical and operative surgery, obstetrics, clinical and operative obstetrics, ophthalmology, otology, dermatology, syphilis, mental and nervous diseases, laryngology, hygiene, legal medicine, diseases of women, and diseases of children; but the main studies of the third and fourth years will be more or less continuous.

The instruction in the special branches, in which an examination is now for the first time instituted, is intended to be more clinical and individual in character than that heretofore given, and should in a large measure take the place of that practical private teaching which has been hitherto sought by American students in European schools after graduation. In the general branches of medical education, too, instruction will be carried, especially in practical directions, farther than was possible in the former cramped period of study. The degree of Doctor of Medicine will be given to candidates who have passed a satisfactory examination in all the studies of the four-years' course, and the distinctive degree *cum laude* to those who have pursued the whole course, and have obtained an average of seventy-five per cent. upon all the examinations above given.

The new plan of instruction goes into operation at the beginning of the next academic year, and can be adopted by all students who are then members of the school. It deserves, and will undoubtedly receive, the earnest support of the profession in all parts of the country.

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HEMORRHOIDS TREATED WITH CAPSICUM.—Vidal. (*Journ. de Méd.*, Feb., 1880, p. 70.)

In cases of hemorrhoidal congestion Vidal regards capsicum annuum as the best remedy. He prescribes four or five pills daily, each containing 20 centigrams, half at breakfast-time and half at supper-time. Under this influence the congestion and all the painful symptoms which accompany it disappear rapidly.

# Summary.

*Collaborators:*

DR. L. W. CASE, DR. R. TILLEY.

## PRACTICAL MEDICINE.

LECTURE ON EPILEPSY.—By W. R. Gowers, M.D., F.R.C.P.

The third lecture was devoted to pathology and treatment. Pathological anatomy in idiopathic epilepsy gives us little help. Regarding convulsions, however, pathological anatomy and experiment give us two sets of facts regarding the seat of the "discharge." Experiment shows that convulsions may originate in the medulla, from a center near the respiratory. On the other hand, no local diseases cause convulsions so frequently as those of the cortex; and irritation of the cortical motor "centers" may cause convulsions, having definite modes of onset, like those sometimes seen in idiopathic disease. But other experimental facts make it possible that these convulsions, though excitable from the surface, arise in connected lower centers. Hence the latest writer of a systematic account of the disease, Rothnagel, with full knowledge of all pathological and experimental facts, concludes that epilepsy is a disease of the medulla oblongata. But the clinical study of modes of onset shows that at least many attacks commence in the hemispheres, viz., those of which the earliest symptom is a special sense or physical aura. The clinical evidence that attacks ever commence in the medulla is small. The "pneumogastric aura" might be regarded as such evidence, but it may be present in attacks which certainly originate in the hemispheres. Such visceral sensations may accompany physical

auræ, as they do normal physical states (*e. g.*, fear). A curious case, however, was narrated, in which fits could be produced by passive movement of the spine, evidence of a probable origin in the medulla. The wide extent of "warnings" makes it probable that, as Dr. Hughlings Jackson has suggested, any of the gray matter of the encephalon which subserves sensori-motor processes may be the seat of the primary discharge in idiopathic epilepsy, but the evidence that the process of the fit commences in the hemispheres is much stronger and more frequent than that it commences lower down.

To explain loss of consciousness, vaso-motor spasm has been assumed, but the hypothesis is unnecessary, since the affection of consciousness may be the result of the discharge. Other evidence that vaso-motor spasm causes any of the symptoms is inconclusive. Pallor of face is not invariable, and does not necessarily show anæmia of brain. It may result from the cerebral discharge. To explain all the symptoms of attacks it is unnecessary to go farther than the instability of the gray matter in which the discharge begins.

This instability may be better understood as instability of resistance than as any increase in the energy-producing function of cells. The doctrine of internal resistance to action has underlain many current expressions as "nerve-tension," and its recognition gives us clearer views of many physiological and pathological problems. Thus we can understand why loss of blood causes convulsions, or a peripheral impression can arrest a fit, not for the moment, but for a long time.

The treatment of epilepsy, it was remarked, is a subject on which numerical analysis gives little help, because so many patients whose fits cease under treatment relapse when treatment is relinquished. The time available permitted little more than a statement of the remedies most useful in 562 cases in which the effect of treatment was carefully noted. The results showed that while we must not rely *exclusively* on bromides, on these our chief trust must still be placed. Of the three alkaline salts the bromide of potassium deserves, as it has received, the first place. The salt of ammonium is more useful, only in proportion to the slightly greater quantity of bromine which it contains, while a

careful comparison in a series of cases, between the salts of sodium and potassium showed that the former is distinctly less useful. The maximum effect of each dose of bromide occurs the sooner, the smaller the dose; hence small doses used to be given frequently. Bromide lessens reflex action, perhaps by increasing resistance in the center, since it antagonises strychnia, which is believed to lessen resistance. If the view that unstable resistance is the chief element in epilepsy is correct, increase of resistance may be the explanation of the action of bromide. The mode of administration is usually by continuous course, in doses just sufficient to arrest the fits. Given thus it was rarely found well to give more than a drachm and a half daily; if this does not suffice, combinations with other drugs answered better than increasing the regular dose. But it was urged that a course of large doses may be for a time employed, with a view of obtaining the full nutritive change in the nervous system, which bromide can effect. For this purpose it was thought best to give it in considerable doses, at longer intervals, beginning with half an ounce. The largest single doses given had been of one ounce, the doses being given at intervals of three to five days.

The value of the various combinations of bromide with other drugs had been tested by ascertaining first, during several months, the effect of a given dose of bromide, and then adding to it the agent to be tested. Of the combinations in common use, those with digitalis and belladonna deserve, as they have commonly received, the first place. Digitalis has enjoyed repute in epilepsy for two hundred years. Alone it sometimes does marked good, and in 63 cases the combination of digitalis and bromide was distinctly more useful than bromide only; in 37 of the cases the attacks ceased during the treatment. The effect of this combination is not confined to the cases in which there is cardiac disturbance, although in these it is almost always useful. Digitalis markedly increases the effect of bromide in nocturnal epilepsy. A case was mentioned in which a patient had not had a single fit for two years on the combination, although he had a fit at night every few weeks on bromide only. Belladonna alone will sometimes arrest attacks. The combination of it with bromide was distinctly more useful than bromide alone in 35 cases, and in 15 arrest of the fits

was obtained. Indian hemp is now and then of marked service even alone. A case was mentioned in which the attacks always ceased on this drug, and recurred at once when bromide was substituted. Other combinations which had been found useful were bromide with aconite, and bromide with hydrocyanic acid. The cases in which the addition of iodide to bromide increases its effect are rare.

Zinc deserves some of the repute it has enjoyed for more than a hundred years. Of a large number of cases, in which the oxide was used in doses as large as the patient could bear it, it was distinctly useful in ten, but in only three did the attacks cease. Bromide of zinc, in doses which could be borne, and the bromide of camphor, had seemed of small value. The addition of arsenic to bromide in no case had any influence on the fits, although largely used, on account of the certainty with which the bromide rash could thus be lessened or removed. Turpentine (recommended by Dr. Radcliffe) had been found distinctly useful only in hystero-epilepsy. The use of iron in epilepsy was discountenanced by high authorities. In some cases it seemed to increase the attacks, but in the majority in which it had been given its influence was distinctly beneficial. In four cases the attacks ceased on iron only; in eight others iron alone was distinctly better than bromide alone; and in nineteen the addition of iron to bromide had a marked influence; in eleven the attacks, which had persisted on bromide, ceased when iron was added, and remained absent as long as the combination was given. In several inveterate cases, in which bromide had little effect, the lecturer had given borax in doses of ten to fifteen grains twice or three times a day. In some it was useless, in some its beneficial effect was most distinct. Several cases were narrated in which the attacks ceased for a long time under its use. Occasionally it causes gastro-intestinal disturbance, but many patients bear it well. Cocculus indicus had not been tried sufficiently for an opinion to be formed, but very little benefit had been observed from its alkaloid, picrotoxine. The same conclusion was drawn from an interesting series of cases in which Dr. Ramskill had employed it hypodermically, which showed, however, that a dose of eighteen milligrammes will almost invariably produce a fit in

from twenty to thirty minutes. Other drugs which had been tried and found useless were benzoate of soda and nitro-glycerine.

In hystero-epilepsy, bromides, sometimes useful, often fail. Belladonna, iron, valerianate of zinc, and turpentine had appeared of greatest value. The treatment of the actual attacks of hystero-epilepsy is often a matter of difficulty. In the slight fits Dr. Pare's plan of closing the mouth and nose is often useful. When this fails Faradization of the skin and cold douches on the head and water poured into the open mouth are often efficacious. Chloroform is of little value. Where all fail the lecturer had found the hypodermic injection of apomorphia invariably successful. After a twelfth of a grain had been injected, in four minutes all spasm was over, in six minutes the patient would get up, in eight minutes vomit, and then, except for slight nausea, be well.

In conclusion, the lecturer remarked that although the condition of many epileptics was still gloomy enough, yet the present generation had witnessed an advance in the treatment of the disease equalled perhaps in no other branch of therapeutics. Thanks to the influence of the drug the use of which in epilepsy was wholly due to fellows of that college, hundreds of sufferers had been cured, and thousands were leading useful lives who would otherwise have been incapacitated by the disease. For all the victims of the disease we might surely trust that the progress of the recent past is the dawn of a brighter day.

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## OBSTETRICS AND GYNÆCOLOGY.

THE DIAGNOSIS OF LARGE OVARIAN TUMORS.—In No. 1 *Centralblatt, für Gynäkologie* for the present year, Dr. B. S. Schultze, of Jena, records two illustrative cases in support of the value of the method of diagnosis recommended by him in No. 6 of the same journal in 1879, and already reported in our retrospect, vol. xxiv., p. 1131. This method consists in putting the patient deeply under chloroform, subjecting the tumor to alternate elevations and depressions and displacements from side to side by means of an assistant grasping it through the abdomen,

whilst the examiner practices the abdomino-rectal manipulation, and is able to satisfy himself of the presence or absence of a uterine or ovarian connection with the tumor, the length of the pedicle, the character of it as to breadth and thickness, etc. Two extremely important cases are recorded, in which the diagnosis of an ovarian tumor, and the exact nature of its pedicle and source of origin, was readily made out by Schultze, notwithstanding that subsequent operation proved that the tumor had the most extensive adhesion to the abdominal wall, the omentum, colon, etc. Schultze argues that the application of this method as a means of exact diagnosis is wider than he had expected, and that the most extensive adhesions do not destroy its value. It therefore, according to him, will enable the operator to proceed in many otherwise doubtful cases directly to operate, when he would have, without it, required to make an exploratory examination.

On the Elucidation of the Indications for Treatment of Anti- and Retro-versions and of Anti- and Retro-flexions of the Uterus, is the subject of No. 176 in Volkmann's *Collection of Clinical Lectures* by Schultze, and is abstracted in No. 2 of the above-mentioned *Centralblatt* for 1880. The author briefly explains his position on the question of versions and flexions. Generally, the importance of changes of position is asserted, but care is taken to guard against the theory that the same etiology and the same treatment is to be held as self-evident in the case of retroflexions and anteflexions and versions. The intra-uterine stems are altogether rejected. Whilst in retroflexions fixation of the fundus is secondary as an etiological influence, relaxation of Douglas's folds primary, in anteversion we find the reverse of the fact, viz., the pathological shortening of Douglas's folds to be the primary etiological influence. Some diagrammatic drawings indicate in the most simple and clear manner the views of the author. The legend of obstructive dysmenorrhœa, which has legalized so many fatal therapeutic procedures, is to be utterly rejected. That flexion of itself can condition stenosis the author emphatically denies. The hope is expressed that this view, stated authoritatively, will contribute to definitely liberate German gynæcology from the fetters of im-

ported opinions unfortunately too readily accepted. In anteversions and anteflexions the author sees generally no indication for mechanical treatment. It is possibly a mistake to attempt to replace even retroflexions and retroversion with the pessary. We must first replace the uterus by hand; then the pessary has the single object and the single aim of retaining the now normally situated uterus in its normal position.

DISEASES OF BLOOD-VESSELS OF THE OVARY IN RELATION TO THE GENESIS OF OVARIAN CYSTS; is the subject of a highly interesting and original contribution to the January number of the *American Journal of Obstetrics* by Dr. Noeggerath of New York. The object of the paper is to demonstrate that the development of a certain percentage of ovarian cysts is due to certain alterations and enlargements of blood-vessels, and thus is formed a variety which the author thinks ought to be called *angioma cysticum*. The conclusion arrived at in the paper is founded upon careful microscopic examination of pathological ovaries, especially of six ovaries removed by Battey's operation from young girls. Dr. Noeggerath found that the structures usually described as *corpora albicantia* were frequently due to enlargement and degeneration of blood-vessels. The coats of the vessels are enlarged, with diminution, though rarely obliteration, of their lumina. The process commences apparently with œdema of the intima or adventitia, whilst the single fibers of the connective tissue element become individually indistinct, melting together, as it were, and ultimately appearing like an aggregation of very finely split up white elastic tissue fibrils glued together. With time the nuclei grow thinner and shorter, assuming shapes occasionally like what are met with in myxomatous tissue. The process could be traced, passing through different stages, from a period when the loops of blood-vesels could be distinctly made out to the time when nothing could be detected but a homogeneous mass. In the small arteries there could be detected a hyaline degeneration of the connective tissue of the intima and of the intermuscular connective tissue, and also a growth of the cellular elements of the media both in number and in size, with the effect of almost entirely obliterating their lumina. The structure formed by degeneration

of the blood-vessels of a vascular territory, although exceedingly like a corpus luteum, is capable, Dr. Noeggerath says, however, of being differentiated from it by careful examination. The cells comprising the corpus luteum are deposited in meshes of irregular shape, and are more or less spherical; the degeneration of arteries, on the other hand, has its cells deposited in interstices resembling an oblong rhomboid. The cells comprising a corpus luteum are coarsely granular and yellowish; those of the arterial degeneration are only slightly granular. On further development the cellular element of the corpus luteum gradually gives way before the growth of the connective tissue part of it, the degeneration loses its fibers by atrophy, owing to the growth of single cells. In consequence we have first the formation of an irregular cavity in the center, containing broken up cells. Gradually all the cells comprised within the group of disorganized vessels become disaggregated, softened, and dissolved. Exosmosis adds to the now increased serous portion, and there results a small cyst whose walls consist to a large extent of normal ovarian tissue. These cysts are not lined with epithelium, and are probably of slow growth. In further developing the subject Dr. Noeggerath considers other changes which take place in the coats of ovarian vessels and finally result in the formation of cystic cavities. One mode of development he attributes to a kind of endarteritis destruens. Here at the commencement a large number of vessels, chiefly arteries, are found closely aggregated together. These have the peculiarity that the elements of their media have increased in number and in size, so as to make the intima appear in a state of atrophy. These ultimately develop into well-formed layers of muscular tissue. Still the several bundles are so arranged that we can without difficulty recognize their development from vessels. The characteristic peculiarity of these masses is that a large number of fissures of oblong shape, and each containing a cell, are arranged concentrically round them. These are larger the nearer the center or lumen of the vessel they are placed, and they tend to enlarge so as to break up the tissues and empty their contents into the lumen, which thus becomes enlarged and dilated into a cyst. Dr. Noeggerath is further driven to conclude that in a certain number of cases those epithelial tubes

found in ovaries as precursors of ovarian cysts are not derived, as Waldeyer, De Sinety, Manassez, etc., believe, from germinal epithelium, but from the tissue comprising the capillary blood-vessels, as he finds the microscopical characters of undoubted vascular changes seen by himself come exceedingly near in general appearance to these so-called tubes as figured by Waldeyer.

A CASE OF ACUTE SPONTANEOUS INVERSION OF THE UTERUS OCCURRING AFTER ABORTION DURING THE FIFTH MONTH OF PREGNANCY, is recorded by Dr. Scott of Philadelphia, in the same journal for January. The details of the case are given with some minuteness, and are interesting as demonstrating that the inversion occurred from no injurious traction on the fundus through the cord or pressure upon it from above. The author explains the accident as essentially due to a peculiar condition of the placenta, which was about three-fourths of an inch in thickness and lined the whole of the interior of the uterus. This thick placenta must have filled the os in such a manner as to increase its diameter about 1½ inches more than was necessary to permit the escape of the head. This dilatation, conjoined with weakness and flaccidity of the uterine tissues, together with the vis-a-tergo effected by the action of the abdominal muscles, appeared to the author to be the efficient causes of the inversion. Records of several interesting cases of spontaneous inversion occurring prior to period of viability of the fœtus are also included in the paper.

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## THERAPEUTICS.

TANNATE OF PELLETIERIN AS A TÆNIAFUGE.—The active principle of the bark of the *Punica granatum*, discovered by M. Tauret, and described by him under the name of pelletierin, has been used with success as a remedy for tænia. It is given in the form of tannate, in doses of (gr. viij) 50 centigrams, followed in two hours by (℥j) 30 grams of castor oil. Dr. Laudrien describes its action as follows: In the two cases observed neither colic nor headache were occasioned. In the first the patient had been prepared by dieting, and a single dose sufficed to expel the tænia entire. In

the second, though one dose did not suffice, the patient was not weakened by the treatment. The patient did not exhibit that repugnance so constantly shown to the administration of kousso or pomegranate bark. In a third case the administration of a dose of the hydrochlorate of pelletierin brought away 15 metres of worm, the only phenomena observed being diplopia and a slight tendency to syncope, both of which soon passed off. The pulse and temperature were not influenced by this medicine; nor were the kidneys in any way affected. The medicine seemed to have an elective and toxic action operating solely on the tænia. (*Jour. de Méd. de Bordeaux*, 18th June, 1879; *The New York Med. Record*, 6th Sept. 1879).—*The Practitioner*, Feb., 1880.

RHUS TOXICODENDRON.—Dr. John A. Henning (*Cincinnati Lancet*) calls attention to the value of the above named drug. It admirably meets certain indications. Thus it removes the dull, heavy, aching pain above the eyes in cases of catarrh. It speedily modifies the burning pain of erysipelas. Combined with gelseminum it increases its power to reduce temperature. In forms of inflammation accompanied by a burning, stinging pain, it quickly removes the pain. In spinal irritation, with enfeebled circulation or spinal anæmia, it is an excellent remedy combined with nux vomica. It is also indicated in passive congestion of the brain or in meningitis. Its general action, when taken in proper doses, is as a laxative, diaphoretic, diuretic, and particularly as a stimulant of the nervous system. The dose is from five to fifteen minims in half an ounce of water.—*The Detroit Lancet*, January, 1880.

HYDROFLUORIC ACID INHALATIONS IN DIPHTHERIA.—Bergeron treated diphtheria in twenty-four cases, with five deaths. The dose is one grain for each cubic meter which the apartment contains, evaporated in the space of three hours. He claims (1.) Inhalations thus given never produced injurious results; (2.) All submitted to this treatment for forty-eight hours were cured; (3.) The membranes do not persist beyond the fifth day; (4.) In no case does paralysis supervene.—*Medical and Surgical Reporter*, 3d January, 1880.

## ANNOUNCEMENTS FOR THE MONTH.

### SOCIETY MEETINGS.

Chicago Medical Society—Mondays, May 3 and 17.

West Chicago Medical Society—Mondays, May 10 and 24.

### CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.

Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.

Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.

Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard; 3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Quine.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.

Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.

Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.

Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.

Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.

Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

THE

CHICAGO MEDICAL

# JOURNAL & EXAMINER.

VOL. XL.—JUNE, 1880.—No. 6.

## Original Communications.

### ARTICLE I.

PERINEPHRITIS: FIFTEEN ADDITIONAL CASES IN CHILDREN, COMPLETING A TOTAL OF TWENTY-EIGHT. Remarks on Diagnosis and Prognosis. By V. P. GIBNEY, M.D., of the Hospital for the Ruptured and Crippled, New York; Fellow of the New York Academy of Medicine; Member of the American Academy of Medicine, etc., etc.

Although previous papers on this subject would seem to render unnecessary additional publications by the same author, it has always been my firm conviction that full records of cases are never out of order, however common or hackneyed the theme may be. Touching the one under consideration, comparatively few American observers have made contributions; and I cannot but feel convinced that many cases of obscure lesion about the hip-joint or spinal column have occurred to many practitioners of large experience. I cannot but believe that many speak flippantly of curing a hip disease, for instance, which was nothing more than a perinephritis that had undergone resolution.

It were unecessary for me to continue my excuses for publishing the following clinical record. These cases are a continuation of nine in a paper in *The American Journal of Obstetrics and Diseases of Women and Children*, April, 1876, of three in another paper in *The American Journal of the Medical Sciences* for April, 1877, and of one in the same journal for Oct., 1878, page 403. The numbers therefore will be readily understood.

CASE XIV. *A tumor first observed in ilio-costal space; a few days later one on thigh; the latter opened by incision. Subsequent connection between the two; cure complete in five months; permanency of same verified by examination two years and four months afterward.* John D., aged three and one-half years, was seen first on the 4th of May, 1877, in the out-door department, and in addition to a general anæmic condition there was observed a soft tumor in the right lumbar region just above the crest of the ilium. It was oval in shape and its base $2\frac{1}{2}$ x 3 inches in area; the skin was not discolored, and there was deep fluctuation. There was a point of induration on posterior aspect of thigh, upper third, same side and the circumference of the limb here was one inch greater than that of the fellow limb. The motion at the hip was smooth and painless although complete extension of thigh could not be made. No evidence of disease at this joint or in the vertebræ could be detected. There was no periosteal thickening about the crest of the ilium.

The child had always been feeble but never lame before the invasion of present disease which dated from the beginning of March. A little stiffness of the thigh, pain at knee, slight febrile disturbance were the first symptoms, and these continued with very little increase in severity until the first of May, three days before applying at the hospital for treatment, when the tumor first made its appearance, and the walking became more difficult.

There appeared to be no indication for surgical interference and an iron tonic was all that was prescribed; but on June 1, the femoral abscess was opened by incision and about three ounces of pus evacuated. This remained open for a few days, closed, then a little later reopened spontaneously while the perinephritic abscess continued slowly to increase in size, without

any marked constitutional disturbance. The thigh flexors were contracted however, and the gait was very awkward.

July 28th.—An unusual amount of pus escaped from opening on thigh, and immediately after this gush the ilio-costal tumor collapsed. This did not make its appearance again, and the symptoms, heretofore quite alarming, began, now to be considered of trifling import. The deformity of the thigh disappeared and it was recorded on—

Sept. 5th.—Sinus has been closed for a week, no sign of reopening, no pain or lameness, no ilio-costal swelling; *cured.*

Feb. 25th, 1878.—Without lameness, and has had no relapse whatever.

Jan. 6, 1880.—Examined carefully this date and still no sign of disease about spine, hip or loin. Has not had any relapse since date of last note.

CASE XV.—*Cure by resolution; confirmed by examination two and a half years later.* Anne C., æt 5, came under outdoor treatment July 10, 1877, with a history of lameness, febrile disturbance, and pain in right loin of two weeks' standing. The invasion was acute and was without known cause. She had been walking lame from the first day, and the lameness was greater towards night. She moaned through the night, and was evidently losing flesh, probably from the unrest. The temperature on the morning of her first appearance at the hospital was only 98½°, and the child did not appear to be sick. There was, however, decided lameness, a rigidity of the spinal column as she stooped, but no tenderness on concussion here, and no angular deformity. The right thigh could be easily and voluntarily flexed to the normal extent, abducted and rotated, but could not be extended beyond an angle of about 135° without causing pain. There was no tenderness at the hip-joint, but there was marked tenderness in the right ilio-costal space with deep infiltration, and a distinct area of fullness. There had been no difficulty in micturition, and the mother had not observed any change in the appearance of the urine. A diagnosis of perinephritis was made and a fly blister ordered over this region.

July 10th.—The blister has produced the desired vesication and the surface has been poulticed every six hours. The child

this morning is very much better; she walks nearly as well as she ever did; stands erect; the thigh can be extended to 180° without any difficulty; the stiffness, so marked on stooping, has disappeared and the fullness in ilio-costal space is scarcely perceptible.

July 25th.—There is no longer any muscular contraction; there is no pain, no sleepless nights, no impairment of appetite, no lameness unless after a long walk; and with this single exception no sign of disease can be detected.

September 3d.—The lameness has disappeared entirely and the patient is discharged as cured.

November 5th.—Calls by request for examination and the cure is fully established.

January 18, 1880.—I visited the house to-day and found the girl as free from disease or lameness as when I examined her two years and a half ago.

CASE XVI.—*At first regarded as hip-disease and treated with weight and pully; diagnosis clear on appearance of tumor; cure by resolution under the hot-water douche; two and a half months' duration.* Edward R., aged five and a half years, came under treatment in the out-door department August 1, 1877, and the following history and observations were recorded: It has been noticed for four weeks that the boy walked lame, favoring left side, and that gradual flexion of the thigh on the pelvis has taken place. This lameness and thigh flexion began rather suddenly with pain in the left loin on motion, and pain in back and over abdomen on very slight pressure. These symptoms were ushered in by a chill, and every day for three weeks there has been a slight chill followed by fever. Two children in the family had scarlatina four weeks ago, while this boy escaped to all appearances. His tongue to-day is a little coated and the mother reports that it has been heavily coated. He is unable to stand alone, but when he is held up or when he lies in the dorsal decubitus, the left thigh is flexed at an acute angle on pelvis, and attempts at passive extension cause pain and resistance. Complete flexion, rotation, abduction and adduction can be made without pain or resistance. There is no infiltration about the trochanter or in the goin. There is distinct fullness in the whole of the left

ilio-costal space extending across the spinal column and below the crest of the ilium with deep fluctuation. The body is covered with sudamina; the boy is quite thin; the pulse is 140, the rectal temperature is 102° (a. m.); the bowels are constipated; the urine is straw-color, has a specific gravity of 1010, contains no albumen, and is about normal in quantity. A microscopic examination is not made. The mother reports that a physician in Hoboken, N. J., where she lives, has been treating the boy with weight and pulley for hip-disease.

Hip-disease is readily excluded this morning on this our first examination, and a diagnosis of primary perinephritis made without any hesitation. An iron tonic is ordered, and cold water applications are to be made to the lumbar region.

August 13th.—Still much emaciated, and the deformity of the limb is unchanged. The fullness has developed into a well-marked tumor, with fluctuation more distinct while the skin at summit is discolored, and a speedy opening is expected. The semi-circumference of the body here is thirteen inches against eleven inches for the right side. There is a uniform antero-posterior curvature of spine from the mid-dorsal region to coccyx without anchylosis at any point. There are still no signs of disease at the coxo-femoral articulation.

The hot water douche is now ordered night and morning, ten minutes application, the parts to be protected with cotton-batting in the intervals.

August 21st.—The angle of deformity with which the thigh is held is about one-half less than it was at date of preceding note. The boy can stand now; has less pain; rests well nights; eats well, in fact is a great deal better. The tumor, however, is present, though not so large, as shown by measurement. The upper third of the thigh this morning measures one inch larger than its fellow. The same treatment to be continued. Without transcribing the notes at different visits it is sufficient to abstract the same by stating that he soon began to walk a little, the fullness disappeared and by September 12th it was recorded that he walked and it was difficult to detect any limp whatever, that he had regained strength and flesh; was quite active; that the thigh could be easily extended over the normal arc; that the spinal column

was straight, and that only a shade of fullness remained. Discontinue treatment.

October 5th.—Called, and after a careful examination negative as to result, discharged cured.

CASE XVII. August J., aged six, came under treatment as an out-patient August 10th, 1877. It was difficult to obtain a satisfactory examination so excessively tender and sore was the little fellow; he was not able to stand or to walk, even with assistance, and as he lay upon the examining table the left thigh was acutely flexed on the body, all efforts at passive extension being resisted. When such was attempted, the boy screamed aloud and pressed his thigh with the hands. Flexion and rotation could be made easily, and there was no tenderness in the hip-joint; it was purely peri-articular. In the left loin there was a marked fullnes amounting nearly to a tumor. There was great tenderness in this region, dulness on percussion. There was no reliable evidence of spinal lesion, although the spinous processes were very prominent, yet this was due to the great emaciation. The pulse was 120, resp. 25, temp. 103°. His urine was normal in color, contained no albumen, micturition was attended with some pain. The boy sickened on the morning of July 16th, being perfectly well and free from lameness the day before. He was taken with high fever, soon got lame and had crying spells on micturition. His prepuce was found to be long, though glans could be exposed, and there did not seem to be any genital irritation. The only cause that presented was that the boy said a play-fellow kicked him in the groin on the 15th of July. The treatment was an iron tonic and the hot water douche.

August 14th.—The semi-circumference of the left side to-day measured a little less than it did on the occasion of first visit, the difference being now three-fourths of an inch. The boy is better every way; rests well nights; has much less pain on micturition and the tenderness is much less marked. His urine has a specific gravity of 1020, is normal in color and does not contain albumen. Continue treatment.

August 22d.—To all intents cured: the fullness and induration have disappeared; he walks and runs with scarcely an appreciable lameness; has no pain; is gaining flesh.

CASE XVIII. *Very acute; hot water douche failing to induce resolution, incision at end of third week; recovery.* Michael S., aged five, was first seen in the out-door department August 23, 1877. He had been lame just one week; had come in lame one afternoon, reporting that he had had a fall that morning; went to bed complaining of his limb and got up next morning feverish. Had been growing rapidly worse; bowels constipated; losing flesh as much probably from loss of sleep as from the gravity of the disease. Already a tumor filled the right ilio-costal space and the characteristic deformity of the thigh was present. This side measured one inch greater than the left, and the thigh at its upper third sustained the same relation to the left as to size. There was no tenderness or infiltration in the groin or in the iliac fossa, but higher and above the crest of the ilium the tenderness was exquisite. The hot water douche was ordered as in the two cases just recorded, and the dialysed iron was prescribed.

August 27th.—No relief from pain; there is marked fluctuation and the case is much worse. The douche was continued a few days longer with apparent relief, but this was only temporary; all hope of getting resolution was abandoned and the abscess finally opened by incision September 8th, when exit was given to about six ounces of thick pus. The discharge ceased in three days, and on September 12th the wound had closed, the sac well emptied and both sides equal in measurement. He walked in erect this morning, although a limp was perceptible. A fortnight later his condition was the same and he was discharged conditionally, *i. e.* with orders to call should any sign of relapse occur. He was, at my request, April 12, 1880, examined by my friend Dr. L. Emmett Holt, who found that the cure had been permanent.

CASE XIX. *Perinephritic and perityplitic abscess; secondary pyeletis; recovery with fistulous (?) track.*

Joseph H., æt. 6, came under treatment November 21, 1877 with the following symptoms: somewhat emaciated, excessively irritable, pain, tenderness and fulness in right ilio-costal space, flexion and outward rotation of thigh resisting extension but permitting quite freely other movements; tenderness on pressure in iliac fossa, rectal temperature 101½°; a burning sensation along urethra on micturition, especially at end of penis, which

appears congested, and a frequent desire to urinate (12 times last night); urine has a specific gravity of 1.025, high color, containing a flaky sediment but no albumen.

Three weeks ago he was taken sick, before which time he had been in excellent health and free from any lameness. He was feverish at the beginning, had colicky pains and flexed thigh for relief. His bowels have been moving daily without medicine, he is very restless at night, has no appetite and is losing flesh.

The hot water douche was ordered and a mixture of chlorate of potassa and tincture of the chloride of iron prescribed. The boy lived some distance from the hospital and the mother was so averse to having him treated as an in-patient, that we consented to treat him as an out-patient. The mother called, on Dec. 3d, to report that the boy was "sinking," lay on his face constantly, suffered almost continuously, and seemed to grow rapidly weaker after two or three douches, which were then discontinued. She brought a specimen of urine which was found to be loaded with pus (the deposit filling three-fourths of the conical glass.) With the microscope I found pus corpuscles in great abundance, a little blood, some epithelial cells, but no casts. The specific gravity was 1020, and the specimen contained no albumen. Flax-seed poultices were ordered and Wyeth's preparation of beef wine and iron was substituted for the potash and iron mixture.

December 8th.—I visit the patient to-day and find him curled up in bed, lying on his face and knees, and out of this position it is very difficult to get him. He is markedly emaciated, the thigh is acutely flexed on pelvis, tenderness along the thigh and over abdomen, right side; in the right loin is a distinct tumor, the skin over which is not discolored. I learn that he does not pass so much urine as he did, and the specimen which has been saved for me is free from any deposit, in fact is comparatively clear; his rectal temperature is 100.° His bowels are now constipated; he has not vomited at any time. Hot fomentations are ordered and the treatment otherwise is unchanged.

December 12th.—The mother reports that another tumor has appeared in the groin, since my visit on the 8th, and that the lumbar tumor has increased in size.

December 13th.—I take with me to-day my friend, Dr. Ripley,

and we find as the mother stated yesterday, an acuminating tumor in the groin above Poupart's ligament, and the former one much larger than at last visit. We decide upon immediate incision, and a bistoury is thrust into the inguinal tumor, when a large quantity of thick pus is evacuated, both tumors disappearing. The fluid toward the last becomes bloody and mixed with this is an amber colored fluid (urine?) which gives a distinctly ammoniacal odor. A tent is inserted and stimulants ordered unsparingly.

After this the case did well, the discharge continuing quite freely for a few days, and on the 18th the urine was normal in color, had a specific gravity of 1015, had an acid reaction, had no deposit and contained no albumen.

January 12th, 1878.—The boy walks into the office this morning with a halt that is scarcely perceptible; he has grown stouter; the wound is closed, this having occurred on the 8th; flexion and rotation are perfect, while complete extension is not yet possible. Discontinue treatment.

January 19th.—Abscess refilled and opened spontaneously on the 17th, though attended with very little constitutional disturbance.

March 23d.—A stout, hearty boy walking without any lameness, though there is a little fulness in lumbar region and a slight discharge from the incision wound.

December 9th.—The patient is brought to the office by request, and from the mother it is learned that the abscess in ilio-costal space opened spontaneously in June last, discharged quite freely for a month or six weeks, closed, opened again a week later, ran for three weeks, closed again, to open after two weeks, and then finally closed. She stated that at each time of opening the odor of the discharge was like that of urine. There is no opening at present and no deformity. The cure seems complete.

April 10th, 1880.—I examined the child and find the cure as to locomotion and freedom from deformity well established; yet there is a crust or scab over the closed sinus in ilio-costal space and the mother tells me that occasionally the boy picks this off when there is a mere oozing for a day or two, then the formation

of a new scab. He has no difficulty in micturition, and the color of the urine is normal.

*Remarks.*—This case presents some points of interest to which I wish to call attention. I cannot fully satisfy myself now, on reviewing the case, whether the pyelitis preceded or followed the perinephritis. The invasion of the disease was marked by colicky pains—"cramps" as the mother described them—and she soon afterwards (before or after the development of the tumor in the loin no one knows) found the boy passing his water quite freely, complaining of a burning sensation referred to the end of the penis, and his urine containing a deposit which, from her description, must have been pus. An ordinary pyelitis from obstruction caused by a calculus may have been the initial inflammatory lesion. Yet, in view of the free flow of urine all the while and of the acuteness of the attack with flexion of the thigh *ab initio*, the subsequent discovery of flaky deposits in the urine voided, I am forced to the conclusion that the perinephritis was primary and very soon invaded the pelvis of the kidney itself. The course of the disease makes the cellular tissue in the iliac fossa the last attacked, giving a perityphlitis. When the complication arose we had constipation, viz., between December 8th and 12th.

The subsequent history of the case pretty well establishes the existence of a fistulous opening from the pelvis into the circumrenal areolar tissue. This is the first case I have encountered with renal complications of any significance. Nieden refers to several in his article.

CASE XX. *Recovery by Resolution.*—William C., æt. 3, came under our observation June 22, 1878, at which time there was marked dullness in the left ilio-costal space, with tenderness, flexion of thigh, lameness, marked loss of flesh and a rectal temperature (morning) of 103°. There was likewise a short cough present, but a careful physical examination of the thorax was attended with negative results. Four weeks before this date he was perfectly well and was not lame. His illness began with a restless night, and next morning he was feverish, complaining of pain in the left loin. Pain here was the only symptom for a week, then lameness was added, and, at the end of the second week, he was unable to walk at all. About this time also there appeared

a "lump" in the loin and the mother poulticed it for the next two weeks, in which period it disappeared, and, as before observed only the dullness and induration could be perceived in this region on the 22d of June. The bowels have not been constipated. On the contrary, they have been loose. There has been loss of appetite, loss of flesh, febrile disturbance, with free perspiration every evening, etc., etc.

A tonic was ordered and the mother was directed to employ hot fomentations continuously. The patient returned on the 25th, three days later, and could walk with tolerable ease, had less tenderness, the dullness was less marked. The mother reported less pain. The rectal temperature was 98°. The cure seemed nearly complete. The case was not seen again, but on April 13, 1880 I learned that the boy had been long since well.

CASE XXI. *Abscess opened on twenty-fifth day; cure one month later.*—John C., æt. 4 yrs, came under treatment in the out-door department August 6, 1878. He was perfectly well up to August 2nd—four days ago—when he had a slight fall, striking on the right side; had a little fever same night and a little since that night but he has continued at his plays as if nothing had happened. The mother reports that his urine, since the fall, has been scanty and high colored. He has had no localized pain unless the right limb be extended; then he refers the pain to back and loin. The thigh is strongly flexed and deep in the lumbar region an induration can be made out. Pulse, 140; temperature, 102½°. The joint is free from tenderness. Hot fomentations ordered and a tonic. He found relief for a few days, but the induration increased, a tumor appeared and finally an incision was made, August, 31st. The urine was examined chemically and microscopically twice and nothing found.

The subsequent progress of the case was towards a rapid recovery, which was fully established by the 28th of September, when a careful examination was made and a cure pronounced. The details differ very little from those of the other case and are omitted.

CASE XXII. *Diagnosis impossible during the first week of observation; this too the third week of the disease; profuse suppuration; perfect recovery.* — Katie D., æt. 10½ years,

presented at the office August 22, 1878, with excessive spinal tenderness and hyperæsthesia of the whole of the left side of the body and thigh, flexion of thigh on pelvis at an angle of 135° from contraction of the psoas, movements in flexion and rotation being perfect, absence of tumor or infiltration or dullness in iliac fossa or ilio-costal space. The child appears very sick, and a prolonged examination this morning is not made. She complains of much pain in epigastrium, and the tongue is coated. By way of clearing up the diagnosis, santonine is ordered. It must be stated, however, that all these symptoms were only of two weeks' duration. The girl was running across the floor one day, and fell, her left side coming sharply in contact with the corner of a table. She complained of a little pain at the time, but this soon passed off, to reappear at the end of three days; then she became lame, grew restless nights, etc., etc.

There was a history of rheumatism in the mother, but nothing else of an hereditary nature on either side of the house.

Two days after her first visit it became impracticable for her to attend as an out-patient, and two gentlemen associated with the hospital—Drs. E. Swasey and L. E. Holt—attend her at her home. They observed the case very closely, and kept very full records, from which I shall make an abstract as briefly as possible.

August 24th.—They find her abed, lying on the left side, thigh flexed to 110°, spinal column deflected a little to the right, tenderness as before, and a frequent desire to urinate, say every ten or fifteen minutes. The bowels are not constipated; there has been no action from the santonine, and the diagnosis is still obscure. A fly-blister to lumbar spine, and belladonna gr. $\frac{1}{8}$ (.008) t. d. ordered; also liq. morph. sulph., U. S. P., p. r. n.

The child continued to suffer night and day, only finding relief when under the influence of the morphia. It was not until the 31st of August that Dr. Holt was justified in making the diagnosis of perinephritis, and even then there was no tumor present. The urine contains no albumen on this date, is amber in color, has a specific gravity of 1005, and a microscopic examination is attended with negative results.

September 10th. The patient is still suffering, and is still losing flesh. Has chills, followed by fever, every day, although

quinine is administered to physiological effects. To-day, for the first time, the tumor presents, and there is indistinct fluctuation. The deformity of the thigh is unrelieved.

September 13th.—Opened by incision, and one pint of pus evacuated, with great relief immediately. This is now six weeks since the first symptoms developed, and four weeks since the patient has been confined to bed. From this time forth the notes indicate a rapid improvement, and by the 26th of September the wound had closed, the fullness had disappeared, and the child was able to walk with very slight lameness.

October 2d.—All movements at hip perfect, except a little resistance to complete extension.

November 4th.—Called at the office, by request, for final examination, and the cure was found to be complete; no resistance to extension, no lameness, no tenderness; child has regained flesh and strength; no difficulty in micturition, and the urine is normal.

CASE XXIII. *Directly traceable to traumatism; cure by resolution in five weeks.* Eda M., aged nine years, admitted to the hospital July 9, 1878. The child was in perfect health to every appearance one week prior to admission and fell across a bench, at school, striking her loin against its edge. She did not experience much pain at the time but in the afternoon of same day was taken with nausea, vomiting and increased pain in the side, aggravated by walking. The father next day made an inspection of the side, but could find no evidence of contusion superficially; there was tenderness here and the child walked lame. She became feverish toward evening, though rested fairly at night and the bowels have been regular until three days ago, since which time they have not moved.

She is poorly nourished, stands with the left limb advanced and semi-flexed at hip and knee, walks with a marked limp favoring the spine as well as the hip. As she stoops the spine is inflexible. The ilio-costal space is fuller on left side than on right, the erector spinæ stands out prominently, there is broadening of the nates on this side and the trochanteric dimple is effaced. There is absence of spinal tenderness on pressure, percussion or concussion, but there is very decided tenderness in the right loin

and over the right sacro-iliac junction. There is a shade of dullness in the region above mentioned and a careful physical exploration of thorax and the remainder of abdomen fails to detect any abnormal signs. The limit to which the thigh can be extended is 135°, while movements in all other directions are perfect.

Hot fomentations are ordered to the loin and an iron tonic is prescribed. The bowels moved after a day or two, but still the tenderness and pain and flexion of thigh continued. Finally toward the latter part of the month the symptoms abated, and by August 16th the case was pronounced cured.

August 30th.—"Has gained in flesh; stands and walks perfectly; no pain or tenderness about loins or hip; no muscular contraction; no limit to normal motion in any direction. Discharged cured."

CASE XXIV. *Large tumor threatening suppuration; rectangular deformity of thigh; cure complete by resolution at end of four months.* Kate K., æt 7, admitted to hospital September 3d, 1878, coming from a wretched part of the city, the family, however, giving a good history. The child herself presents evidences of mal-nutrition, and has been subject for the past two years to epiliptic attacks, but there has been no paroxysm now for three months.

On the 8th of August, without any known cause, she began to complain of pain in her left loin and across the lumbar spine, at the same time flexing the thigh of same side on the abdomen; had considerable febrile disturbance that night, and every night for a week following. The bowels were constipated subsequently. The child was brought to the out-door department on the 12th of August, and at that time walked with marked limp; would not permit the thigh to be extended beyond an angle of 145°, though permitting free movements in all other directions. The temperature that morning was $100\frac{3}{4}°$. No fulness or tenderness could be discovered in the ilio-costal space, or iliac fossa. A diagnosis of perinephritis was made by Dr. E. F. Horst, a member of the hospital staff, and the patient advised to come into the wards. The parents did not return again with the child until the date above mentioned, September 3d, and during the interval the symptoms had increased in severity, so that to-day she is much thinner than

at last visit. Stands in a very constrained position, barely able to touch the floor with toes and ball of foot; walks with body thrown far forward and to the left, the hand resting firmly upon the knee. The angle of deformity of thigh is now 90° and efforts at passive extension beyond this cause much distress. In the ilio-costal space there is well marked fulness, almost circumscribed, extending from a line one inch to left of spinous processes to a perpendicular let fall from the nipple, and the semi-circumference of the body over this fulness is $1\frac{3}{8}$ inches greater than that of the corresponding side. Position does not change the tumor, and there is no fluctuation perceptible; no acumination. There is decided tenderness. The limbs are equal in length, but the left thigh at its upper third is one-half inch larger than the right. Rotation is easy and flexion causes relief. The treatment is the same as that adopted in the preceding case, and at no time during the subsequent progress of the case was there any great constitutional disturbance, in fact this case differed materially from the other cases in the freedom from constitutional disturbance. At no time did the temperature rise above 101°, although on September 24th it is recorded that there is marked induration with swelling, heat and redness extending from spine around left side to median line in front; acumination threatens near the anterior superior spinous process.

October 1st.—Since last note symptoms have materially diminished in severity; thigh is much straighter and it actually seems as though the tumors were decreasing by resolution. From this time forth it did continue slowly to diminish, the child became quite active, and at the date of her discharge, January 7th, 1879, motion at the hip is perfect; general health excellent; there is no fulness above or about the crest of the ilium; case cured.

CASE XXV. *At first acute, then becoming chronic; ilio-costal tumor, with usual thigh deformity; disappearance of both under repeated blistering; cure by resolution at end of six months.* Golda G., æt. $14\frac{1}{2}$ years, admitted to hospital July 21, 1879. Was perfectly well about four months ago when the disease for the relief of which she now seeks relief was first developed. The girl had for some time prior to this been actively employed at a

sewing machine, and one day without any provocation, she experienced a sharp pain in the right lumbar region. This continued and increased to such severity that in three days she took to bed, where she was confined for three months with high fever, loss of flesh and pain so intolerable at times that relief was afforded only by opiates. There was excessive tenderness all along the lumbar spine in lumbar region, and down the thigh, right side, so that the slightest movements caused intense suffering. She preferred to lie on the right—the affected—side, and would keep the thigh flexed on abdomen. The bowels moved regularly every day, and there was no renal or vesical trouble so far as the parents knew, i. e., the urine was not voided too frequently, and its passage was not attended wth pain. After three months she got out of bed, but was unable to get about unless assisted. It was not until two weeks ago that she attempted to go out of doors, and then was taken by the family physician to consult a prominent specialist, who seems to have made a diagnosis of perinephritic abscess. The treatment has been blisters, poultices, electricity and "almost everything."

On examination to-day, we find a girl of large frame, well developed, standing with the right thigh flexed on pelvis at an angle of 135°, and walking alone with the greatest possible difficulty (walks only at our urgent request) and moving when it is necessary supported on either side by her father and her sister. Her pulse is 140 and temperature 101½° (buccal.) Along the crest of the right ilium posterior half, is a well marked fullness, not very tender on pressure, skin not red, semi-elastic but not fluctuating. This fullness extends up into the ilio-costal space, is without appreciable dulness in this space and no tumefaction in the iliac fossa. There is no tenderness along spinal column, over any portion of the abdomen, in or around the hip-joint. The nates on right side flattened yet free from infiltration. The inguinal ganglia are not enlarged. The semi-circumference of the body on a level with the area of fullness is one inch greater on the right side. The thigh can be actively and passively flexed, abducted, adducted and rotated to the extreme normal limit without pain. The limbs are equal in size and in length. Pain is complained of only when extension is attempted. The

spinal column is free from angular deformity is normally flexible and is not tender on concussion.

A diagnosis of perinephritis is made unreservedly and the treatment as in the two foregoing cases adopted. Yet by the 24th of August the relief afforded was not such as to justify a continuance of the treatment. The tumor was the same in size and the deformity of the thigh was the same as when she was admitted. The temperature chart for one week exhibited a variation between 98½° for the morning, and 101¾° for the evening.

August 25th.—A fly blister is applied over the lumbar tumor this evening, and the vesicated surface is to be dressed in the morning with flaxseed poultices.

September 1st.—The improvement since date of last note is most marked. She walks now nearly erect, and without any pain. The tumor is about one-half its former size.

September 5th.—Limb can be completely extended without pain. The vesicated surface has nearly healed and the improvement continues.

September 10th.—Another blister is applied over the tumor this evening, in the hope of causing its complete disappearance.

September 26th.—As she walks it requires the eye of an expert to detect the side on which the disease existed; in fact there is no appreciable limp. A careful examination shows no fullness in the ilio-costal space, no tenderness on superficial or deep pressure, movements of thigh perfect in kind and degree, no deviation of spinal column, thighs equal in size and length. The general health is excellent. Discharged cured.

October 14th.—Called by request, and carefully examined with absolutely negative results.

CASE XXVI. *Profuse suppuration with great constitutional disturbance; complete recovery at the end of ten weeks.* Maggie H., aged nine, was admitted to hospital July 21, 1879, the same date on which the previous case was admitted. The family history is unimportant. Very healthy during infancy, rubeola being the only one of the exanthemata she has ever had. Two days ago she was brought to the out-door department, and the following history and observations were recorded:

She was well up to four weeks ago, was then taken sick with

chill and fever, and was confined to bed, being treated by the physician in attendance for typhoid fever (parent's report). She had pain in right side and over abdomen, was constipated and had some vomiting. Since the first week she has had great difficulty in walking, has had pain in the hip and down the thigh, has been very restless nights and has become quite weak and cachetic. She hobbles into the office leaning heavily on the mother's arm; stands only when supported, resting most of her weight on the left limb, while the right is raised and everted, the toes only touching the floor. The left lateral decubitus she finds the most comfortable and when thus lying the right thigh can be easily flexed to the extreme normal limit and also rotated perfectly, but extension beyond 135° is resisted by muscular action, and the child screams aloud. On getting up she uses both limbs well in flexion and bears her weight on the knees without pain. There is no swelling or tenderness about the hip or trochanter, but in the ilio-costal space, right side, there is a decided fulness extending over to the spinous processes. There is dulness here on percussion as compared with the opposite side, and tenderness is quite marked. The examination is not extended any farther, but the diagnosis is made of perinephritis without any reserve. On her admission the condition is unchanged.

A carthartic is ordered, a tonic of iron and chlorate of potassa and warm fomentations to the lumbar region. The treatment is to be essentially expectant.

July 22d, p. m.—Pulse 130, respiration 28, temperature 102½°.

July 23d, a. m.—Pulse 115, respiration 35, temperature 101½°; p. m., pulse 120, respiration 30, temperature 103½°.

July 29th.—The fullness has increased and the thigh is now adducted as well as flexed.

Aug. 8.—Has complained recently of pain in head and left side of neck, and there is tenderness over the trapezius muscle. This may be due, in the absence of any other cause found, to her constrained position in standing or walking, which is certainly very peculiar. It is as follows: body inclined forward to an angle with the pelvis of about 135°, head carried backward and

to the left, right thigh advanced and hand resting on the knee. Her face in every feature indicates pain.

August 10th, a. m., pulse 124, resp. 36, temp. 101¾°; p. m., pulse 128, resp. 36, temp. 103°. She does not complain of pain but rests so poorly nights that a twenty grain dose of bromide of potassium is ordered at bed-time. The record of vital signs shows the highest range of temperature 104° on the morning of the 14th, when the infiltration extends over into the left ilio-costal space, upward to the eighth rib and downward to within one inch of the natal fold. There is marked fluctuation and the skin is glossy and discolored in spots. An incision is made about three inches to the right of the spine and just below the last rib, the pus, very offensive in odor, spurting forth in a thick stream. About one pint is evacuated and poultices are applied. Brandy of course is freely administered. Her temperature falls this evening to 102½°.

August 15th, a. m.—Pulse 100, resp. 30, temp. 98½°. She is induced to lie on the right side and a tent is inserted; p. m., pulse 120, resp. 25, temp. 98½°. The discharge is abundant. She can extend the limb over a much greater arc and her condition is greatly improved.

August 19th.—Leaves her bed to-day. The sac is pretty well emptied. She stands almost straight, the stiffness of the neck has disappeared, is gaining flesh daily.

August 26th.—Stands and walks erect. The wound has closed.

September 5th.—All treatment is discontinued; she walks and runs with ease and is growing quite fleshy. The cure is about complete.

September 16th.—Discharged this date cured. The child is carefully examined and the only sign of pre-existing disease is the incision cicatrix in the right loin. There is no lameness whatever.

October 8th.—Called by request to-day and undergoes a thorough examination with negative results.

CASE XXVII. *A chronic form probably by extension from a nephritis(?) Nearly two years before tumor presented; under observation as an out-patient six weeks immediately preceding*

*the presentation of the tumor; during this period diagnosis made, first of lateral curvature and high shoe ordered, then of caries of the spine and brace ordered; abscess opened one month later; did not close until three and a half months afterwards; cure complete and final examination four months after this.* Katie H., aged nine years, was brought to the out-door department June 13, 1879 and was seen by a member of our staff who is exceedingly careful in his observations. He learned from the mother that the child had been walking stiffly for about a week only and during that time had lost flesh and strength. He found a half-inch shortening of the right limb with tilting of the pelvis to that side, a dorso-lumbar curve with convexity to the left, a correction of this curve by placing under the right foot as the child stands a book three fourths of an inch in thickness, and free movements at both hip-joints. He made a diagnosis of lateral curvature (followed by a mark of interrogation) due to shortening of the limb. He ordered a high shoe and a tonic. On July 18th I examined the case quite superficially, recognized the obliquity of the pelvis, also a stiffening of the spinal column, observed more distinctly as the child stooped, and made a diagnosis of caries of the lumbar vertebræ, ordering a spinal brace to be applied on the 25th inst.

July 28th.—The patient did not come on the 25th but comes this morning and there is observed a fulness in the right ilio-costal space extending up to the lower border of the ribs and to the left, overlapping the spinous processes. This is more distinct as the child stands. The rectal temperature is $100\frac{1}{4}°$. The spinal brace is not applied but a diagnosis of perinephritis is now made and in-door treatment advised.

The patient is admitted July 30, 1879, and in the history, more carefully obtained this morning, it is found that she comes of a family tuberculous and scrofulous and has been living for a long while in the basement of a tenement house. It is learned that two years ago (a short time before this she had a mild rubeola) she began to have pain in the back, had headache, had œdema of the eyelids mornings, her urine was scanty and high colored. The symptoms were not severe but lasted for about six months; then she seemed as well as she had ever been, with the

exception of an occasional pain in the right side, until the beginning of June, when lameness and the symptoms described under date of June 13th manifested themselves.

It is additionally noted that during the past summer she has had occasional attacks of vomiting and that the bowels have been regular. There is no fall or other injury in the history.

There is found marked dulness over the region of fulness and possibly deep fluctuation, and the semi-circumference of the body here is 12 inches, against $10\frac{1}{2}$ inches for the left side. There is no anchylosis or disease to be detected in the spinal column, and pressing the alæ of the pelvis in the direction of each other gives no pain at sacro-iliac synchondroses or down the thighs. The only sign of any importance about the hips is a limitation of the extension of right thigh. The physical signs of thorax negative; pulse, 125, temp., 100°. The urine is not examined. Tonics are ordered, and the treatment otherwise to be expectant.

August 26th.—The record of vital signs shows no evening temperature above $101\frac{1}{4}$°. For a few nights recently has had much pain. The skin over the tumor is tense and red.

August 27th. Abscess opened by incision, and only about two ounces of pus evacuated.

September 8th.—The wound is still discharging, though scantily, and the fulness has not materially diminished. Her general condition is good, and she walks with very little deformity.

September 25th.—There is some infiltration yet about the opening, which has assumed the character of a fistulous opening, though the track is not explored.

During the latter part of this month, and the early part of October, there was nocturnal enuresis, which was relieved by belladonna. A little oozing continued from the opening, even after all fulness and deformity had disappeared, and we watched closely for the exfoliation of any bone, but found none.

December 12th.—The opening has just closed. It did not open again, and the patient was discharged cured on January 16, 1880, when it was recorded that she stands naturally, and walks without the trace of a limp; that there is no deviation of the spinal column to right or left; no tenderness along spine, over crest or in ilio-costal space; that the spine is normally flexible,

antero-posteriorly as well as laterally; that the mobility at hip-joints is perfect; that the limbs are equal in size and length; and that the only sign of former disease is the cicatrix in the loin.

On the 24th of April, 1880, Dr. Swasey was kind enough to look the case up for me, made a thorough examination, and found the cure well established. He secured a specimen of urine, which I examined microscopically, finding nothing pathological.

CASE XXVIII. *Spontaneous recovery after the appearance of the tumor.* Jane G., æt. 4¼, was admitted to the hospital January 6, 1880, much emaciated, totally unable to walk, left thigh flexed on pelvis at an angle of 135°, easily flexed to the normal extent, easily rotated, yet not extensible beyond the angle just named. The hip-joint was absolutely free, but there was fulness and tumefaction in the left ilio-costal space, extending down into the groin, with dulness over a large area, and excessive tenderness. There was marked elevation of temperature, but this was not measured. The child came from the worst part of the city, although the family history was good. The present disease began five weeks ago with slight lameness. This was attributed to a fall. Fever soon developed, the sleep was disturbed, the lameness increased, and for the past seventeen days the child has been unable to walk at all. There has been much constitutional disturbance, and pain has been referred to the spine, the loin and the thigh.

The mother removed the child the same day, and was referred to my friend Dr. W. T. Bull, one of our consulting surgeons, who kindly admitted it to Chamber Street Hospital about three weeks later, had it put to bed, where it remained two or three days, pending a thorough examination. When this was made, Dr. Bull informed me, February 18th, there was no fulness found, no lameness, no sign of disease. A complete recovery had taken place spontaneously.

The foregoing clinical record pictures, I trust, with sufficient clearness the symptoms and course of this affection. I have little to add on this point to my former contributions to the literature of this subject. A larger experience but enables me to repeat a paragraph in my first paper—viz.:

"*Symptomalology.*—In typical cases the disease generally be-

gins with a rigor or two, febrile exacerbations more or less severe according to the acuteness of the attack, lancinating pains in lumbar region, loss of appetite and general indisposition. In fact the invasion does not differ materially from that of other acute inflammatory lesions, unless perhaps, the pain be more localized, and if the child be very young the locality of the pain is not discovered. Constipation, I believe, is always present. Very soon we have preternatural immobility of the spine, a stooping forward with elevation of the shoulders. After a week or ten days, spasm of psoas muscle occurs, and the gait becomes characteristic of that so commonly regarded as the second stage of hip-joint disease. The urine is of high specific gravity, and is loaded with urates. The tumefaction appears and the pain becomes excruciating. If an exit be given to the pus a speedy recovery follows; if this be delayed and the contents of the sac be really pus, it burrows along the cellular tissue, producing an immense abscess, a spontaneous opening is effected and the convalescence is protracted. If on the other hand, the inflammatory process has not resulted in suppuration, the contents are most likely serum, and resolution is effected."

The disease in twenty-seven of twenty-eight cases I have now placed on record ran its course in an average period of about three and one-half months. The analysis gives: two cases terminating in one month, three in six weeks, eight in two months, six in three months, two in four months, three in five months, two in six months, one in one year, while one (No. xxvii) *seemed* to extend over a period of two and one half-years.

In *sixteen* there was suppuration more or less extensive, while in *twelve* there was no suppuration at all. We see, then, that nearly one-half the entire number underwent resolution.

As to the constitutional disturbance produced, in thirteen cases this was very great, and at times very alarming, in eight it was moderate only, and in six was very slight. The complications were few. In one there was an alarming hæmorrhage, easily controlled, however; in one there was a cellulitis of the thigh or rather a periarthritis of the knee; * one had a femoral abscess,

* See sequel of this case in a paper on "PERIARTHRITIS," by the author of this paper in the N. Y. *Medical Journal*, May, 1880, case xx.

one a sub-scapular abscess, one a nephritis and one a pyelitis. In several there was incontinence of urine and at times painful micturition; yet these are rather symptoms than complications.

In nineteen I could find no exciting cause. In eight the cause was a contusion, a strain or a fall, while in one a nephritis seemed to be the starting point. I fancy that perinephritic inflammation is induced as is inflammation in most other localities, viz: by excesses of heat and cold.

The ages of the patients vary between one and one-half years and fifteen. Five were under three years of age, twelve between three and six years, eight between six and ten, and three between ten and fifteen.

The sexes were about equally represented, i. e., there were thirteen males and fifteen females.

The lesion was on the right side in fourteen cases, and on the left in fourteen—equally distributed. Among the females the right side was the one affected in six cases, the left in seven. Among the males eight for the right side and seven for the left.

The treatment employed in the twenty-eight cases has varied a little, yet it has chiefly been expectant. No specifics have been discovered, and I am fully convinced that *in the management* of the cases lay the secret of success.

One ran its entire course without medical or surgical aid, and the result is one that any medical man would be proud to get! Four were treated on the purely expectant plan—no surgical interference, nothing to promote resolution. The general condition of the patient was regarded as the one essential feature demanding attention. Two of these terminated in resolution; two in suppuration, all making perfect recoveries.

The hot water douche was employed in five cases and two of these went on to suppuration despite the douche, while three made a speedy recovery, terminating by resolution. Hot fomentations were used in four instances with good results in two, *i. e.* two got well without suppuration, and the other two got well after abscess. In five cases blistering and subsequent poulticing constituted the treatment, with four recoveries without any suppuration.

As regards the time at which the incision was made, an early incision was made in three, a late one in eleven, while in two

cases the abscess opened spontaneously. In one instance only, Case XIX, was there any delay in recovery and any annoying complication. In all probability if the abscess had been opened early there would have been no complication.

Twelve cases terminated in resolution and sixteen in suppuration. All, with a single exception, made perfect recoveries. That exception was in Case I, reported in my first paper on this subject. Since the publication of that paper I have found that this girl walks a little lame. The mother states that this came on subsequent to her discharge. I have within the past year examined the parts well and have found no joint lesion whatever, but a loss of power in one of the glutei muscles, due, I am confident to destruction of some of its fibers by the extensive suppuration. Otherwise the result is perfect.

In concluding this paper I wish to insist on a careful examination, several times if need be, a history obtained without bias, an unalterable conviction that hip disease is from the beginning a chronic disease, and a slowly progressing disease; I wish to insist, I say, on these as points absolutely essential in making diagnosis. I dislike to be hypercritical, but I firmly believe that ninety per cent., yea, I am prepared to assert a much larger per cent. than ninety, of the cases of hip disease reported as cured without lameness or deformity, cured completely, are not and never have been cases of hip disease. I speak advisedly on this subject, and I shall claim the privilege of publishing from time to time such cases as may be and are readily mistaken for hip disease; cases of perinephritis, of perityphlitis, of periarthritis, of primary traumatic periostitis, of the various neuroses of the hip, of subacute rheumatism about the hip and of acute primary synovitis of the hip, all of which affections are insignificant as compared with that terrible malady, with the advanced stages of which we are all so painfully familiar despite the great improvements in orthopœdic surgery.

I cannot close this article without acknowledging valuable assistance from Dr. John J. Berry, of our hospital staff, in making out the foregoing analysis.

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The following comprises the names of the large bulk of authors who have written on the subject of perinephritis, whether in adult life or in childhood. The most extensive and at the same time one of the most recent articles is by Dr. G. Nieden. This author gives a table of 166 cases, of which 23 are under fifteen years of age. There are also, of this number, 24 primary cases in adult life.

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## Article II.

### Diseased Meats and Foul Water Considered as Causes of Disease.

By Henry M. Lyman, M.D., Professor of Physiology, Etc., Rush Medical College, Chicago.

In view of the peremptory manner in which our newspaper oracles assign to this or to that article of food and drink the cause of the most varied diseases, it seems desirable to ask whether any exact knowledge may exist regarding the relations between our aliments and the maladies which afflict the community. Scarlet fever, diphtheria, malarial fevers, etc., etc., have recently been referred to contamination of our water-supply. The sanitary authorities consider "emaciated beef, sour hams, cholera hogs," and various other kinds of game, so dangerous to the public health that they are daily presenting the fertilizer-factories with hundreds of pounds of meat, of which no inconsiderable portion might otherwise find its way to the mouths

of certain classes of our population. How far this course may be necessary and justifiable becomes, therefore, an important question. In his recent work on Epidemic Diseases, Professor Léon Colin has carefully reviewed the whole subject, and has arrived at the conclusions which I shall present in the following abstract of his chapter on Food and Water, considered as causes of disease.

If animal food, says our author, can be considered the cause of epidemic disease, it is through its absence rather than through its quality. The cattle-plague itself does not vitiate the character of beef furnished by cattle dying of the disease. The principal danger to man in such cases lies in the risks of a meat famine caused by the general destruction of the herds. The experience of Chauveau might lead to a belief in the danger of consuming the flesh of animals affected with diseases communicable to the human species, but experience proves the contrary. During the first French Revolution the poor of Saint Germain and of Alfort were preserved from starvation by the use of the flesh of glandered horses which they devoured without any injury whatever. The same thing is true in the case of meat derived from animals affected with anthrax. Flesh which contains the germs of trichina, of echinococcus, and similar parasites, is alone really dangerous as an article of food. It is the class of aliments derived from the vegetable kingdom which is the most likely to prove injurious to the health of man. Scurvy, leprosy, pellagra, ergotism are familiar examples of alimentary diseases. Dysentery and diarrhœa have been charged against the abuse of fruits; but these affections are usually produced by causes which simply coincide, in point of time, with the ripening of fruit. The absence of food, such as occurs in famine, often profoundly modifies nutrition without the production of any of the maladies which are properly associated with defective or vicious alimentation. Under such circumstances, the results appear as an aggravation of the majority of the prevailing diseases, and an increase of the mortality, which rises as the famine becomes intensified. Thus we see typhus fever, relapsing fever, dysentery and similar diseases associated with a deficient alimentation. The intimate relation which exists between the rate of mortality

and the price of provisions has long been remarked. High prices mean scarcity among the poor; and a scanty food supply soon effects an increased predisposition to disease. The results of such varying conditions are fully illustrated on a large scale in the Asiatic empires. In districts where the ancient irrigation works have been restored, so as to furnish abundance of water for the crops, cholera and other wasting diseases cease to prevail; the population rapidly increases, and good health becomes universal. The first care of our sanitary authorities, when they undertake to deal with the food-supply of the people, should be directed toward measures tending to increase its quantity and to decrease its expense. Great caution, therefore, should be exercised in the matter of confiscating and destroying edible meats. Such destruction of a portion of the supply enhances the cost of the remainder and reduces the quantity available for the nourishment of the poor. It is only necessary to stand for a short time in any frequented market, to see how great is the number of unfortunate creatures who are compelled to approach the butcher with the humble inquiry for cheap meat. The world is full of people who would gladly feast upon the refuse which the rich consider hardly fit for a dog. If it can be shown that much of the meat which is now subject to destruction in our market is really harmless as food, its loss is a tremendous waste of capital in the form of human health and vigor.

I am well aware that the attempt has recently been made to show that typhoid fever may be caused by the consumption of tainted meats. A careful analysis, however, shows that the cases quoted as cases of typhoid fever are really cases of intestinal irritation produced by the use of meats in a state of actual putrefaction. This only occurs among those who use compressed meats, old sausages, putrid cheese, etc.; and the cases recorded bear no kind of relation with the use of such articles. They belong to the category of cases of poisoning by the eating of custards—articles of diet which are ordinarily perfectly harmless but which may occasionally be transformed into deadly poisons, probably by the growth of poisonous fungi or algæ in their substance. In the *British Medical Journal* for March 20, 1880, may be found a collection of such cases; but of them all it may

well be remarked, in the language of Colin (p. 147), that such examples are ensphered in a multitude of cases where "similar diet has often been used with an impunity which forbids its enumeration among the causes of typhoid fever."

*Drinking Water.*—A certain class of medical writers are accustomed to accuse the water supply of a community as the vehicle of communication by which the efficient causes of malarial fever, cholera, typhoid fever, etc., etc., are conveyed into the system. This doctrine is, just now, exceedingly fashionable among English authors, who seem ambitious to surpass each other in the display of uncritical credulity. Without denying the communication of parasitic diseases by the injection of water containing the eggs of worms, our author examines the evidence advanced in behalf of the communication of the various epidemic diseases and arrives at the following conclusions:

I. *Intermittent fevers* are caused by respirable malaria. Numerous examples are given in illustration of the fact that people who drink so-called malarious waters, but who do not breathe the atmosphere of the malarious locality, are not attacked with malarial fevers; while, on the contrary, people who, like the Romans, dwell in a malarious atmosphere, but who, at the same time, drink the pure aqueduct water from the healthy Appennines, are scourged with fever. Swamp waters have been considered causative of fever because, in the vast majority of cases, the people who drink them are at the same time breathing the malarious atmosphere which is associated with them. In this connection it is interesting to note that in the recent experiments of Professor Klebs at Rome (*Med. Times and Gazette*, Jan. 17, 1880) the injection of rabbits "with water standing over the marshy ground remained without effect," while infusion of the organic matter in the soil produced grave febrile disturbance.

II. *Typhoid Fever.* English and German authors have collected a number of examples supposed to prove the communication of typhoid fever by drinking water. The story of the Lausen epidemic is perhaps the most extraordinary example of such narratives. It is given in full by Dr. Cayley, in a recent lecture on typhoid fever (*Brit. Med. Journ.*, March 13, 1880).

Ballard and others have attempted to make out a similar method of water contamination as the cause of local epidemics of typhoid fever. But when, as in the Lausen epidemic, it has been shown that the disease had been prevailing less than two miles from the village for nearly two months previous to the greater outbreak, it would seem that all the credulity of an homœopathist was needed in order to adopt the hypothesis that the fever poison was conveyed by filtration through a mountain a mile thick, rather than the more reasonable view that it had found its way over or around the obstacle by the vehicle of personal intercourse. It, however, should not be forgotten that the use of water charged with decomposing organic matter may become one of the predisposing causes, if not an actual exciting cause of typhoid fever. This may especially be observed in localities where fecal accumulations are allowed to filter into adjacent wells. Ordinary excrementitious substances may then help to originate the fever.

III. *Cholera.*—The propagation of cholera by contiguity, its rapid diffusion, and its dispersion without regard to community of water-supply, all seem to negative the idea of its propagation through the medium of drinking water. When cholera was raging in Paris it did not prevail in the towns which took their water from the Seine below the city. The oft quoted examples of local prevalence of the disease among people using a common well or spring, with cessation of the epidemic when the water-supply was changed, may be explained by reference to the well-known brevity of local epidemics. While it may be admitted that water charged with putrefying organic matter may disorder the general health, thus undermining the power of resisting disease, it cannot be considered a direct cause of cholera.

IV. *Dysentery and Diarrhœa.*—These are the maladies in the production of which foul water is most efficacious. Examples without number exhibit the relation between stagnant waters, filled with decaying matter, and these intestinal diseases.

V. As for *scarlet-fever*, *diphtheria* and all other similar diseases, there is not the slightest evidence that they have any direct connection with the character of the water-supply. Even the attempt to connect the occurrence of ulcerative stomatitis with the use of melting snow as a drink has failed.

That water over-charged with decomposing organic matter is dangerous to health is universally admitted, and we have presented a view of the diseases which it may cause, as well as those which it can influence only in the most remote and indirect manner. It remains to inquire what degree of organic pollution (I have excluded from this essay all consideration of the dangers arising from the use of waters containing an excess of mineral matter) may be tolerated with impunity. The English Commission on River Pollution, proposed the following (Nature, Jan. 15, 1874, p. 197) as a standard beyond which organic matter could not be increased without danger: "Any liquid containing, *in solution*, more than two parts by weight of organic carbon, or 0.3 part by weight of organic nitrogen in 100,000 parts by weight." The test furnished by the French Academicians (Nature, June 10, 1875, p. 116) is sufficiently simple for popular use. The results of their investigations "seem to prove that water in which animals and plants of higher organizations will thrive is fit to drink; and, on the other hand, water in which only the infusioria and lower cryptograms will grow is unhealthy." Tried by either of these standards our Chicago water supply is still beyond suspicion.

The latest deliverance on this subject is from the pen of Prof. Tidy, who, on the 18th of March, 1880, read before the London Chemical Society, a paper on River-water. His conclusions regarding sewage will be read with interest by our friends along the Illinois river. His reporter says, (Nature, March 25, 1880, p. 507): "From inspection of the effect produced by sewage on rivers, from analyses of the river-waters, and from experiment, the author concludes that the oxidation of the organic matter of sewage takes place, when mixed with unpolluted water and allowed a certain flow, with extreme rapidity. The various methods of artificial purification are discussed; of these filtration through sand is preferred. Under the third category the arguments for and against the use of river water for drinking purposes are examined; it is shown that the death-rates of towns supplied by wells and of those supplied by rivers are practically alike, and that in London there is very little to choose, as regards mortality, between districts supplied with well-water and those supplied by

river-water; and while admitting that, as a matter of sentiment, he would prefer well-water, the author contends that there is no reason for supposing that the *materies morbi*, whether it exists as a germ or not, can resist oxidation, which is efficient in destroying other organic matter, as proved by chemical analysis. The author finally submits the two following conclusions: 1. That when sewage is discharged into running water, provided the dilution with pure water be sufficient, the whole of it, after the run of a few miles, will be efficiently got rid of. 2. That facts indicate that whatever may be the actual cause of certain diseases, the *materies morbi* which finds its way into the river is destroyed along with the organic impurity."

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## Article III.

Cases of Tracheotomy for Croup and Diphtheria. By E. Fletcher Ingals, A.M., M.D., Lecturer on Physical Diagnosis and Diseases of the Chest and on Laryngology in Post Graduate Course, Rush Medical College.

Case I. About the middle of March, 1880, I was called by Dr. David Dodge to operate on —— Miles, a boy about six years of age, suffering from diphtheritic croup.

We found the child breathing laboriously and much exhausted, but not markedly cyanotic. Assisted by Drs. Dodge, Mulfinger and Waters, I operated at once.

Shortly after the introduction of the tube the child ceased breathing and was apparently dead, but the heart was found to be still beating, and the tube was clear. Artificial respiration and vigorous rubbing of the limbs, kept up for about twenty minutes, had the happy effect of restoring the patient. Subsequently the child did well. Lime water was kept boiling in the room and an atomizer was kept in use part of the time, throwing a spray of carbolic acid. The patient was kept on tonics, quinia and iron, and made a good recovery.

The tube was removed on the twelfth or thirteenth day (I am not quite certain which).

Case II. —— Freer, æt. about two years, true croup. April 6, 1880. I saw the patient first about 9 a. m. on this date and found him breathing laboriously and partially cyanotic. I at once told the mother that an operation offered the only chance for saving her child. She wished it performed and I hastend for my instruments.

I returned about ten o'clock with Dr. D. W. Graham, who had kindly consented to assist me, and, finding the child unconscious and extremely cyanotic, we made preparations for the operation with the greatest despatch. When the child was placed on the table it manifested no sensation on touching the eyeball, therefore no anæsthetic was used. The operation was completed without difficulty, but, as I had at hand no tube of proper size, silk threads were passed through the trachea near the edges of the opening on each side and fastened with an elastic behind the neck. Two students, Messrs. T. E. Webb and L. W. Pontius, volunteered to stay with the patient and give all necessary care. The patient rallied and seemed very bright that evening, but early the next morning Mr. Pontius telephoned to me that the child was rapidly sinking. I hastened to the house and found the patient, as he had stated, in a precarious condition. The tissues about the wound were dry and the opening into the trachea partially contracted and the trachea itself partially filled with inspissated mucus.

I made a solution of bi-carbonate of soda, a teaspoonful to a pint of water, of which I directed a spray with the steam atomizer on the tracheal opening for about half an hour, by which time the mucus was softened, so that we removed it and, upon inserting a tube, the child again breathed easily and rapidly improved. In the evening the child continued better than early in the morning, but it showed some symptoms of filling of the bronchial tube with the croupy exudation.

Mr. P. remained with the child until one o'clock of that night, when it died from the gradually increasing obstruction below the trachea, thirty-nine hours after the operation. This patient had been hoarse for two or three days but had no alarming symptoms until the night previous to the operation. The mother had treated these as she had been accustomed to treat croup, by free

use of substances which caused vomiting. After the operation the child was given fluid diet, which it took sparingly, and whisky, which was administered freely.

CASE III. True Croup. April 11, 1880. L. Gingsburg, æt. six, had been sick about two days.

This case was very similar to the above. I was called by telephone at midnight to see "a child dying in croup," therefore I took my instruments with me. I found the child cyanotic, restless, breathing laboriously and nearly unconscious.

An operation was advised and consented to. I sent for Dr. Bartlett, who lived only a block distant, and, as soon as lamps could be procured, we made the operation. When the child was placed on the table she was nearly insensible but a small amount of chloroform was administered to keep her quiet.

The operation was made as the preceding and ligatures were passed for convenience through the cut edges of the trachea. This case progressed almost exactly as the preceding, and death occured in forty hours, from a similar cause. The treatment was the same as in the preceding, with the addition of the internal use of benzoate of soda. Mr. Pontius, who watched the preceding case for me, stood faithfully by the little patient to the last, and to his careful and assiduous attendance are to be attributed the last twenty hours of the patient's life.

The first of these cases was diagnosticated diphtheritic croup. It was operated on comparatively early and recovery occured.

The two latter were undoubtedly cases of true croup; they were operated on after they were moribund and their lives were prolonged about forty hours, to the great comfort of parents and friends, and death finally came quietly, without a struggle.

188 CLARK ST., CHICAGO.

# Clinical Reports.

## Notes From Private Practice.

### Article IV.

*A Severe Case of Puerperal Eclampsia at the Eighth Month of Pregnancy, with Recovery.*

I was called professionally, at one o'clock, on the morning of the 20th of January last, to visit Mrs. H.

On my arrival, I found her in a perfectly unconscious condition, having severe convulsions every few minutes, accompanied with frightful facial contortions; frothy mucus mixed with blood issued from the mouth; the pupils were dilated; the skin cool; pulse one hundred and sixty and feeble; and respiration stertorous and frequent. Her temperature was not noted. She was unable to swallow. From Mrs. C., at whose house Mrs. H. was residing temporarily, I obtained the following history of the case:

The patient is eighteen years of age; married, and within a month of expected confinement, primipara; has enjoyed good health to present illness; was taken sick during the preceding afternoon, and vomited several times; when, toward evening, slight labor pains ensued but irregularly. This continued to be the condition of Mrs. H. until about twelve o'clock, midnight, when she was seized with convulsions.

On examination per vaginam, I found a vertex presentation; os uteri dilated about two and a half centimeters in extent and patulous; and the pelvis of normal amplitude. Digital dilatation of the os was readily effected, and without much delay the membranes were ruptured and liquor amnii discharged. It now became apparent that the convulsions had entirely suspended

uterine action, and, of course, no further advancement toward delivery could be expected under the circumstances, from the natural efforts of the patient. The extreme gravity of the case brooked no delay, and immediate delivery, became a *sine quâ non*.

Not having come prepared to encounter just such a case, some little time was consumed in sending for obstetrical instruments. Without any unnecessary delay, however, the forceps were applied, and the patient was readily delivered, at two o'clock a. m., of a dead female child, weighing eight pounds. The child had been dead, apparently, several hours.

The convulsions ceased, immediately after delivery, and did not return; respiration, gradually, became regular and free, and, indeed, all bad symptoms were at once ameliorated. After waiting an hour at the bedside, I administered an anodyne to control restlessness which began to manifest itself, and left the patient for the night. Her restoration to consciousness did not occur until seven o'clock in the morning, an interregnum of nearly eight hours. She made a speedy recovery, without the development of any untoward symptoms. The urine was not tested, but was no doubt highly albuminous, as is almost universally the case in this disease.

The notable points in this case, worthy of observation, are the extreme severity of the disease, the profound coma almost extinguishing life from the first, the sudden cessation of the convulsions after delivery, and the rapid recovery of the patient.

The usual treatment, restored to in puerperal eclampsia for the purpose of subduing the convulsions, viz., venesection, choloroform inhalation, chloral hydrate, etc., was not employed; and, I opine, would not have proved of much avail, as the vital powers were too much exhausted; besides, this would have consumed valuable time.

The conclusions of that eminent British obstetrician, Dr. Robert Barnes, in my opinion, establish the correct rule of procedure, in these cases, viz., That after the sixth month of pregnancy, the first, and indeed the most important measure, is to relieve the uterus of its burden, and this too at the earliest possible moment.

I am confident in considering the critical condition of the patient, when first seen, that nothing but delivery could have arrested the convulsions, and have prevented a fatal termination of the case.

E. DAY, M.D.
GRAND TOWER, ILLINOIS.

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TREATMENT OF PROLAPSUS OF THE RECTUM BY HYPODERMIC INJECTIONS OF ERGOTINE.—M. Vidal. (*Bulletin de l'Acad. de Méd.*, Feb. 3, 1880, P. 110.)

According to the author, prolapsus of the rectum may be readily cured, and in a comparatively short time, by hypodermic injections of ergotine. By this new method Vidal has succeeded in curing three adult cases, of which he gives the details. He used (gr. xv) one gram of Bonjean's extract of ergot or ergotine in (℥ jss) five grams of cherry laurel water. Each injection consisted of 15 to 20 drops (exceptionally 25), which is equivalent to 20 to 25 centigrams of ergotine; or, in other words, to the extract of a gram and a half to three grams of ergot. None of the injections were followed by inflammation or abscess. Bonjean's ergotine causes a rather sharp, burning pain; the solution of iron is much better tolerated. In the future the author will give preference to the latter.

A CURIOUS ACOUSTIC ILLUSION. (*Telegraphic Journal*, London, September 15, 1879.) This illusion, pointed out by M. Plumaudon, of the Puy de Dôme Observatory, has also been observed by others who have made use of a pair of telephones in receiving messages or in experimental research. With a single telephone held, say, to the right ear, the transmitted voice seems to come from a distance to the right; while with a telephone held to the left ear it seems to arrive from the left of the listener. With a telephone to each ear, if one ear be less sensitive than the other, or if the telephone be held farther from that ear, the voice apparently shifts to the side of the other ear; and if both ears hear alike and both instruments are equally near their respective ears, the voice apparently proceeds from in front of the observer.

# Society Reports.

## ARTICLE V.

ILLINOIS STATE MEDICAL SOCIETY. Annual Meeting at Belleville, Ill., May 18, 19 and 20, 1880.

### FIRST DAY. MORNING SESSION.

In the temporary absence of the President, the First Vice President, Dr. G. W. Jones, of Danville, occupied the chair. Prayer was offered by Rev. Mr. Van Treese. An address of welcome in behalf of the local Committee of Arrangements was made by Dr. W. West, Chairman.

The address of welcome on behalf of the citizens, by Judge Snyder, was postponed to the evening. Various matters of routine business were attended to, when the President, Dr. E. Ingals, of Chicago, arrived and occupied the chair. A letter of resignation of the office of Permanent Secretary was received from Dr. N. S. Davis. Dr. Davis gave as a reason for his resignation ill health, and expressed regret at being obliged to take this step after a service of thirty years.

His resignation was accepted and a committee appointed to prepare resolutions that should properly express the sentiments and regrets of the Society at this step.

### AFTERNOON SESSION.

Dr. E. Ingals read his address as President. It dealt chiefly with the hygiene of cities, and was especially applicable to Chicago.

First were considered the duties of the government and of the profession in sanitary matters. He assumed that much

of the disease we suffer might be avoided by drinking pure water and breathing pure air, and this led to a consideration of the sewerage of Chicago and its water supply. He advocated the enlarging of the canal to the capacity of a river; the use of large quantities of water in our houses and sewers; the ventilation of sewers in the streets, and of house-drains by pipes reaching above the house, and of the house itself by heating with open grate fires, being careful that the air supply is pure, and especially that it be not drawn from beneath the house. Also, that government supervise the sewerage, plumbing and air supply of buildings—private as well as public. He claimed there was no water superior to that of the Northern Lakes, and predicted that Illinois would become populous and wealthy enough to supply this to its interior cities for domestic use. He advocated, so far as possible, the isolation of the sick from the well, and official surveillance of highly infectious and dangerous diseases, as smallpox, scarlet fever, yellow fever and Asiatic cholera; the use of disinfectants and the placing of warning cards. Also, that government should prevent ignorant people and charlatans from practicing the healing art, and prescribe the attainment necessary to enable any person to receive the degree of Doctor of Medicine. He advised that authors of papers presented to the Society be allowed to contribute them to medical journals either before or after their publication in the transactions.

Dr. Crummer, of Warren, then read the main report on

*Practice of Medicine.*—It embodied a discussion of diphtheria, with an account of an epidemic of this disease during the past fall and winter.

He discussed the evidence bearing on the contagiousness of diphtheria, and added to this evidence in the affirmative from his experience.. Diphtheria was brought into one small community (having fifty-nine school children) by two boys who had visited a neighborhood at some distance where diphtheria was prevalent. In a few weeks the disease spread to fifty-eight people, with a mortality of thirty per cent.

He advocated the prompt isolation of all people sick with diphtheria. It was criminal almost to allow the uninfected children

to remain in the same house with the infected. In one case he had had constructed a wood shanty in which to isolate the well children of a family where a case of diphtheria had occurred.

In the epidemic which he reported, two cases out of seventeen cases of severe nasal involvement had recovered.

His local treatment of the throat consisted in, among other things, the application of solutions of tannic acid. For the nasal cavities when they were involved he used a four per cent. solution of carbolic acid, or a solution of salicylic acid of the same strength, injected freely into the nose.

He spoke next of an epidemic of

*Pneumonia* which had visited Northern Illinois during the past winter. It had been quite widespread—the number of cases being greater than for years previously—but the mortality was low.

An extensive correspondence with many members of the profession in relation to this disease had shown that the practice as to the use of blisters and veratrum viride was very variable. There was quite a unanimity in the use of considerable doses of alcoholic stimulants for all cases that assumed a form of great depression.

Dr. F. B. Haller, of Vandalia, read a supplemental report on Practical Medicine, which consisted in an account of an epidemic of

*Mumps* which had occurred in his neighborhood during the past winter season. Nothing so widespread had ever occurred in his experience. Whole communities were attacked with this disease. Schools were, for a time, suspended for want of pupils. The cases were of all varieties in severity, but the proportion of severe cases was large. Metastasis was common. It occurred most in males, especially boys. A few cases occurred among grown women, in which the parts involved were generally the mammary glands, very rarely the ovaries. Girls escaped these complications. In a few cases inflammation of the meninges of the brain took place as a complication, and in some the symptoms were quite alarming. The temperature was as high as 105° F., the tongue dry; delirium was present and a typhoid state, yet no deaths resulted.

The complicating inflammation of the testicles was found most in the severer cases of parotitis.

The epidemic had witnessed no fatal cases, and no cases of damage of testicle had so far been noted among the victims of this visitation.

The treatment was expectant and palliative, poultices and Dover's powder forming a large part of it.

Dr. Bird, of Quincy, in discussing Dr. Crummer's report on diphtheria, advocated the Billington treatment, and had not thought isolation much of a necessity.

Dr. Hollister hoped for a better study and more evidence as to the bacterial character of the poison of diphtheria. He advocated the application to the diphtheritic patches of the liquid sub-sulphate of iron.

Dr. C. T. Parkes advocated the combination of a vigorous tonic treatment with a vigorous local one. For the latter purpose he would use the liquor ferri persulphates and glycerine in equal parts for application to the throat, and for the nose, when involved, solutions of boracic acid, to be freely used by injection.

Dr. W. Hill, of Bloomington, read the chief report on

*Surgery*.—He discussed the whole range of the recent important improvements in modern surgery, but paid special attention to antiseptic surgery, extirpation of floating kidney, extirpation of cancers of the rectum and treatment of rodent ulcer.

He recommended thymol as being equal to carbolic acid for the spray in the Lister treatment.

He quoted several records of cases of extirpation of the rectum. The operation seemed to be a feasible one. He had witnessed one operation of this kind in Cook County Hospital by Dr. Isham.

He advocated the treatment of rodent ulcer by the scraping-out process, and related three cases of successful operation by this method, the disease not having returned in either case. He did the scraping with the handle of a scalpel, and made it very thorough. Every particle of diseased tissue, down to perfectly healthy structure, was to be removed in this way.

He read a supplemental report by Dr. A. C. Rankin on

*Conservative Surgery*, in which were detailed some cases of

very severe crushing injuries of the extremities, which recovered with useful limbs under conservative management.

Dr. J. G. Harvey read a report of two cases, one of extirpation of the parotid gland, the other an unusual case of hernia in an old woman.

In the latter case there was a band of fibrous tissue constricting the knuckle of gut inside the abdominal wall, making a strangulation that was not relieved by reduction of the hernia within the sac.

Dr. Bird, in discussing these reports, advised the attempt, in extirpating tumors of the rectum, to save the sphincter ani muscle. He had once done this successfully. He used the electrocautery instead of the knife.

Dr. C. T. Parkes gave his experience and observation, in Cook County Hospital and elsewhere, with thymol in the antiseptic spray. It was not as valuable as carbolic acid. By Callander's method of dressing without spray, but using a two and one-half per cent. watery solution for freely washing wounds and wounded surfaces, or an eight per cent. solution in oil for the same purpose, the results were as good as by the Lister process with thymol.

Rectotomy was a very hazardous operation, the mortality of which was so large that it ought never to be done except for a very small epithelioma. Whenever the carcinomataous infiltration involved two or more inches of the intestine and encircled the canal it was useless to operate, if the teachings of experience were of any value. He had witnessed five operations, with four deaths; in three of these the peritoneal cavity had been opened. This accident was likely to happen whenever, during the operation, the tumor was drawn forcibly downward. This latter maneuver ought never to be made, nor should stitches be inserted into the cut end of the gut.

Dr. Hill spoke of his method of treating strangulated hernia. It was by carrying his finger or thumb up into the ring, forcing the skin before it, and dilating the ring by pressure upward until reduction without a cutting operation was possible.

Since he had used this method he thought he had operated on

one hundred and fifty cases with success, and without encountering a case which this procedure would not relieve.

SECOND DAY. MORNING SESSION.

Dr. G. W. Nesbitt, of Sycamore, as Chairman of the Committee on Obstetrics, read his report. His effort was chiefly devoted to a consideration of the necessity that beginners in the practice of medicine have practical instruction in obstetrics. He thought this was the direction in which medical colleges could best improve their systems of instruction. In no department were young graduates so defective as in this. He advocated lying-in-hospitals in connection with medical colleges, and said that on the so-called cottage plan the expense need not be great.

Dr. W. T. Montgomery, Chairman of the Committee on Ophthalmology and Otology, read an interesting paper on

*Suppurative Inflammation of the Middle Ear.*—This paper was a discussion of the subject in general, without any attempt to offer anything not found in the literature of the subject. The importance of a more full understanding of the importance and dangers of these affections by general practitioners was specially emphasized. He also reported a case of

*Double Optic Neuritis* from a violent fit of anger. The patient was a full-blooded, robust man, with a family history of insanity, and was subjected to more than usual excitement for a week previous to failure of vision, and the day previous he had a violent fit of anger. The ophthalmoscope showed the papillæ intensely engorged. Treatment: Free local blood-letting and large doses of chloral hydrate and potass. bromide. In three weeks from the time of beginning of failure of sight the neuritis had entirely disappeared. Vision, which when patient was first examined was right eye, fingers at ten feet, left eye $\frac{15}{100}$, had returned to normal condition, and so continues.

Dr. S. J. Jones made remarks commendatory of the report, insisting on the importance of a better understanding of these chronic ear troubles by practitioners.

Dr. F. H. Davis presented a volunteer paper on

*Inhalations*, in their application to diseases of the deeper pulmonary structures. Since reading a paper on the same subject,

several months ago, before the Chicago Medical Society, he had made many new observations, and had added to the means of administering inhalations.

AFTERNOON SESSION.

The Committee on Nominations reported, recommending the following as officers for the ensuing year:

President—Dr. G. W. Jones, of Danville.

First Vice President—Dr. W. Hill, of Bloomington.

Second Vice President—Dr. G. W. Nesbitt, of Sycamore.

Treasurer—Dr. J. H. Hollister, of Chicago.

Assistant Secretary—Dr. W. T. Montgomery.

Committee of Arrangements for next meeting—Drs. J. Nevins Hyde, Norman Bridge, F. H. Davis, Roswell Park and E. F. Ingals. They recommended Chicago as the next place of meeting.

The report of the committee was accepted and adopted.

The Judicial Council reported through their Chairman, Dr. F. B. Hullar, recommending the expulsion from the Society of Dr. L. R. Williams, alias Lucas. The report was adopted unanimously.

Dr. Lucinda H. Corr, of Carlinville, from the Committee on Gynæcology, read an interesting paper on

*The Relative Value of Symptoms of Neurasthenia, as such, and the Remote Symptoms of Uterine Disease.*— She argued that while symptoms of neurasthenia might be due to general causes, uterine disease was capable of producing them, and frequently they were so produced. Neurasthenia in women was usually caused by uterine disease.

When symptoms of uterine disease and symptoms of neurasthnia were found in the same patient, it was generally true that the former had occurred first. There were three modes of treatment in vogue for such cases. The first was travel, hygiene, general tonics, etc. The next was local treatment of the uterine disorder. Of these two the latter was the best, as shown by results. The best treatment was a judicious combination of the two already mentioned.

Dr. Jewell remarked that the position assumed in the paper was correct.

Dr. J. H. Rauch next occupied the attention of the Society in a detailed statement of the doings of the State Board of Health since its organization. He also discussed the value, relations and means of execution of the Medical Practice act, and that for the gathering of vital statistics.

Dr. J. J. R. Patrick, of Belleville, read an essay on

*Medical Specialties*, but more especially the specialty of dental surgery in its intimate relation to the general practice of medicine.

*First.* Specialties necessary to human progress as it is impossible for one mind to acquire an accurate knowledge of the whole domain of medicine.

*Second.* The impossibility of drawing a line of demarcation between the different specialties and the general practice of medicine.

*Third.* The great abuse in constant practice by so-called dentists in using anæsthetics as an auxiliary in the extraction of teeth, in order to replace them with others less expensive.

*Fourth.* The many diseases of the mouth, which are constantly under the eye of the intelligent dentist, render him, if properly qualified, the proper person to treat such disesases, owing to his constant manipulation in that region.

*Fifth.* Showing that the mouth, being the vestibule of the alimentary canal, should receive more attention on the part of the general practitioner in the diseases of the body.

Dr. H. Z. Gill, a special committee on

*Croup*, read a lengthy paper in which he discussed the literature of the pathology of croup and diphtheria. He also discussed the treatment of these affections, and especially tracheotomy, and added to his former statistics of the operation in Illinois. The per cent. of recoveries from the operation up to date was 27½.

His conclusions as to the pathology of the two diseases were that there is nothing revealed by the microscopic or by the chemical examination of the deposit in the throat or elsewhere, by which the one disease may be distinguished from the other.

The next paper was by Dr. E. L. Harriott on

*Anæsthetics in Labor.* He had "circularized" the profession of the State and received replies from nearly twenty practitioners on the subject of his paper. All who had replied were pleased with the use of anæsthetics in labor, and most were warm in their enthusiasm. He advocated the use of anæsthesia much earlier than most. He would use it in the first stage of labor, and was sure it hastened the termination of this stage and of the completion of labor. He had never seen pains retarded by it; nor severe hæmorrhage. He would carry the agents to full insensibility, even in the first stage, and keep the patient under their influence most of the time till full delivery.

There was no hazard in this practice. No death had ever been reported from anæsthetics in labor.

Chloroform was his favorite agent and was the one used by most of his correspondents. This paper was discussed by Drs. Bird of Quincy, Palmer, McIntyre and others of St. Louis, and Reber of Shelbyville, and Dr. Steele.

A memorial was read from the Woman's Christian Temperance Union, asking the opinion of the society upon the necessity of ever using alcohol as a medicine, and whether ale and beer were beneficial as tonics.

It was, on motion, referred to a special committee of three.

The committee on Necrology presented their report, which included a biographical sketch of the late Dr. Thomas Bevan, which had been prepared by Dr. E. Ingals of the committee.

Dr. E. W. Lee, of Chicago, then read a paper on Tracheotomy.

This paper was discussed by Dr. Bird, who advocated operating without the tube.

Dr. Gill thought very much depended on the thorough care in the after treatment.

Dr. Porter, of St. Louis, advocated a longer incision both through the trachea and the overlying tissues. Nothing could be lost and much was gained in the ease with which the tube was removed and replaced and the trachea kept free from accumulations.

Dr. Gill introduced a resolution amending the by-laws so as to allow members to have copies of papers read before the society

for publication in medical journals, provided it be with the explanation that they were read before the society. The resolution was passed.

THIRD DAY. MORNING SESSION.

The only scientific business was the reading of a paper by Drs. Lee and Fenger, of Chicago, on Tuberculosis of Joints, with three cases of extirpation and exhibition of two of the patients. As this paper is soon to appear in the JOURNAL AND EXAMINER we will not summarize it.

A resolution was introduced and passed to the effect that the advertising of quack medicines by newspapers was an imposition upon the people, to their pecuniary loss, and often to their physical injury and discomfort, and was unbecoming any publication making pretensions to teach morality and religion.

It was voted to instruct the secretary to send a copy of this resolution to each religious newspaper in the United States.

The special committee on the memorial from the Woman's Christian Temperance Union, presented a report, the purport of which was that while the society recommended temperance in all things, its members felt that alcohol was, in its place, a valuable medicine that could not be dispensed with.

The report was adopted, but a special committee was appointed to report on the subject more fully at the next meeting.

In appropriate resolutions the thanks of the society were tendered the local committee, the railroad companies, Profs. Hodges and Irwell for their evening lectures, and Judge Snyder for his able evening address. The society then adjourned.

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## ARTICLE VI.

## THE MICHIGAN STATE BOARD OF HEALTH.

The regular quarterly meeting of the State Board of Health was held in Lansing on April 13. The members present were Dr. H. O. Hitchcock, of Kalamazoo; Leroy Parker, of Flint; Rev. D. C. Jacokes, of Pontiac; Dr. J. H. Kellogg, of Battle Creek, and H. B. Baker, secretary.

The president, Dr. Kedzie, being absent, Dr. Hitchcock was chosen president *pro tem.*

The secretary presented a letter from Dr. Kedzie, stating that the severe illness of his son, Prof. W. H. Kedzie, would prevent him from attending the meeting. In this connection the board adopted a resolution expressing sincere sympathy for Dr. Kedzie and family.

WORK IN THE OFFICE.

The secretary read the quarterly reports of work in the office for the quarters ending January 7 and April 13 respectively. After the meeting in October, 1879, a large number of copies of the Lansing *Republican* containing an abstract of the proceedings of the meeting and the complete report of the committee on sanitary conventions was sent out to manufacturers and dealers in sanitary appliances, and to sanitarians, in order to secure as large exhibits and attendance as possible. Circulars of the sanitary conventions at Detroit and Grand Rapids were also sent out from the office. Sixteen regular correspondents in the State have been added to the list. Mortality statements for the city of Lansing have been sent for each month to a large number of exchanges. The record of meteorological observations taken at the office and printed in the *Republican* are reprinted and sent weekly to about thirty-five observers of the board and contributors of meteorological data. One hundred and thirty-five monthly meteorological registers have been received from observers. The card catalogue system of keeping the library in the office has been adopted. The library numbers over 2,000 accessions. Daily papers containing accounts of the sanitary conventions at Detroit and Grand Rapids have been sent from the office quite freely. The secretary has completed a paper on "Glanders in Man and Animals" for the forthcoming annual report, and a paper on "General Sanitation," which was read at Detroit. There have been distributed from this office, 5,215 copies of circular 34, 6,258 of circular 35, and 3,129 of the document on the "Restriction and Prevention of Diphtheria."

Of circulars 36 and 37, transmitting blanks for annual reports of clerks and health officers, there have been sent of each, 1,369 copies. Annual reports have been received from about 575 clerks

and 550 health officers. A circular to supervisors of townships, asking for a return of name and address of health officer for ensuing year, has been sent out to the 1,440 townships. Copies of circular 38, relative to diseases in Michigan, 1879, have been sent to 143 regular correspondents. Circular 39, asking for the return of name and address of health officers of cities and villages, has been sent to 440 clerks, mayors and presidents. Blank meteorological registers to the number of 1,134 have been sent to observers; and 2,495 postal card blanks sent to observers of diseases. The compilation of material for the report for 1880 has gone steadily on. In the correspondence of the office 668 pages of the letter book have been used. New meteorological stations have been established at Hillsdale and Marshall, and arrangements started for two more—at Onondaga and Reed City. Of the communications received, 45 have been referred to committees of the board.

The secretary presented some documents issued by the local board of health of Tecumseh, as illustrative of what a live, energetic board of health might accomplish.

Mention was also made of the health officers and authorities of Lansing, who have done good sanitary work, and succeeded in establishing a system for the collection and registration of vital statistics, which requires burial permits, Lansing being the first city in the State to take this commendable step. Muskegon, under the lead of Mayor Holt, was also mentioned for active efforts for the prevention of disease.

A communication from C. H. Voute of East Saginaw, stated that he desired to form a circuit of towns and cities in this State, for using the odorless excavating apparatus for the removal of contents of privy vaults. A resolution was adopted recommending local boards of health to secure the cleaning of vaults by means of such apparatus, wherever the dry earth system is not in use.

The present editions of the documents on the Restriction and Prevention of Scarlet Fever, and on the Restriction and Prevention of Diphtheria, being practically exhausted, it was decided to have them revised, published in the next annual report, electrotyped, and a large edition of each document printed. As it is to

be electrotyped, local boards of health may procure any number of either document at a slight cost.

### DIPHTHERIA.

The secretary stated that, inasmuch as diphtheria has been so prevalent in this State, it has been suggested by an officer of the national board of health that this was a favorable field for a systematic investigation of the causes of the disease, particularly as to what are its relations, if any, to filth. The subject was thoroughly discussed, at some length, and the great desirability of such an investigation was unanimously conceded, but the resources of the board are entirely inadequate for such a house to house inspection as seems essential.

The secretary was directed to correspond with the national board of health and see what arrangements can be made for such an investigation.

### SANITARY CONVENTIONS.

The secretary was authorized to begin printing the proceedings of the recent sanitary conventions at Detroit and Grand Rapids as soon as practicable. The report of the board for 1879 is now in press, and will shortly be issued.

Dr. Kellogg, as committee on the disposal of decomposing organic matter, presented a paper on

### DECAYING WOOD A CAUSE OF DISEASE.

He related experiments by Prof. Wm. H. Brewer, confirmed by himself, showing that when green wood was allowed to stand for some time in water the solution decomposes, and gives off very offensive odors. Even when the water was renewed again and again, the similar result ensued. The paper was prepared with special reference to the practice of putting sawdust in streams and ponds, and it tended to confirm the belief that the practice is frequently productive of malarial and diarrhœal diseases.

### SANITARY SURVEY.

Dr. Jacokes, chairman of the committee on such survey, made a statement relative to the desirability of having a sanitary survey of the State, and as to its probable extent and cost.

SANITARY SCIENCE EXAMINATIONS.

July 14, the day after the next meeting of the board, it will, if candidates apply, examine them in sanitary science, giving a certificate of merit to those who pass a satisfactory examination. An outline of the plan of these examinations will appear in the forthcoming report for 1879.

An unusual amount of routine business was transacted, auditing of accounts, etc. The next meeting of the board will be July 13.

## Article VII.

### State Microscopical Society of Illinois.

The annual meeting of the State Microscopical Society of Illinois was held at the Academy of Sciences, 263 Wabash avenue, Friday evening, April 23, 1880.

The treasurer's report showed a highly satisfactory financial condition, about $200 having been paid in during the past year, while the expenditures were less than $50.

The following papers have been read before the society since the semi-annual meeting, last October:

Recent Microscopical Work, by James Colgrove.

The Microscopical Examination of Signatures, by Lester Curtis.

The Microscopical Examination of Dust, by A. C. Thomas.

A New Observation on the Histology of the Fœtal Lung, by Lester Curtis.

The Microscopical Examination of Tissues after the Administration of Mercury, by S. V. Clevenger.

The Study of the Cell, with Reference to the New Theory, by Lester Curtis.

Plant or Animal? A Popular Description of some of the Myogastric Fungi, by the Secretary.

Notes on Micro-lithology, by A. C. Clark.

The Intra-ovular Life of the Chick, by C. H. Kimball.

The following gentlemen were elected: President, B. W. Thomas; Vice-Presidents, Lester Curtis, M.D., Prof. E. J. Bastin; Secretary, E. B. Stuart; Corresponding Secretary, James

Colgrove; Treasurer, W. H. Summers; Trustees, Prof. E. J. Hill, Dr. S. J. Jones, Dr. F W Mercer, H. M. Thompson and Chas. Boring. E. B. STUART, *Secy.*

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At a meeting of regular physicians of Aurora and vicinity, held at Aurora, Ill., March 15, 1880, a medical society was organized and named the Aurora Medical Society. It is designed to be auxiliary to the Illinois State Medical Society and to meet on the second Monday of January, March, May, July, September and November. The officers for the present year are as follows: President, A. Hard, M.D. of Aurora, Ill.; Vice President, D. S. Jenks, M.D. of Plano, Ill.; Secretary and Treasurer, M. M. Robbins, M.D. of Aurora, Ill.

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HYDRATE OF CHLORAL AND OXIDE OF ZINC IN ACUTE INTESTINAL AFFECTIONS OF CHILDREN.—(*Archiv. Clin. Ital.*, No. 3, 1880.)

Dr. James Tison has found useful a combination of hydrate of chloral and oxide of zinc in cases of intestinal irritation, infantile diarrhœa, summer diarrhœa, diarrhœa of nurslings, etc. He gives the chloral in clysters and the oxide of zinc by the mouth. At the same time a strict dietetic regime is enforced. A solution of a (ʒj)gram and a half of chloral in 60 grams of starch water is made, of which a teaspoonful to a teaspoonful and a half is injected two or three times a day. In addition to this, a teaspoonful of the following mixture is given every five hours:

| | | | |
|---|---|---|---|
| Oxide of zinc | (ʒj) | 1 | 50 |
| Gum Arabic, Sugar | āā (ʒij) | 7 | 50 |
| Lactopeptine | (ʒj) | 3 | 50 |
| Cannella water | (ʒj) | 32 | |

# Foreign Correspondence.

## ARTICLE VIII.

VIENNA, April 24, 1880.

MESSRS EDITORS:—The medical visitor in Vienna loses no time in seeking the great hospital which makes this city the Mecca of the medical world, attracting hither, as it does, knowledge-seekers not simply from America, North and South, but from all Europe, even England and France. Permit me to anticipate right here, and say that while I have as yet no personal acquaintance with the professional advantages in the other European capitals, I am assured by men who have studied in London, Paris, Berlin and Leipsig, that the facilities here surpass all others. One gentleman, after a thorough trial of Paris and Berlin, came to Vienna and was so pleased that he has remained here three years; another, after studying here a while, went to Paris, but returned to Vienna in less than three months. An English gentleman here acknowledged that while the London hospitals were more elegant, and many of the teachers, in his opinion, as renowned, yet the material there is not nearly so accessible as here—the London hospitals being scattered all over and around that immense metropolis, while in Vienna, all the instruction, clinical and didactic, is given within five minutes' walk of the hospital gate.

One approaches the hospital without any suspicion of its beneficent character; it is a bleak, dingy, stuccoed affair, bordering the sidewalk of a narrow street; it might be a hotel, a wholesale business house, a prince's palace or a private dwelling, for in Vienna these are all alike unattractive and forbidding in their external appearances. But the legend over the portal—"Salus

et Solatio Ægrorum—Franciscus I., MDCCCXXXIV"—reveals to me the fact that this is the way we long have sought. Passing the gate, we enter a square court or park, about two acres in extent, enclosed by the hospital pavilions and rich in shrubbery, grass, trees, fountains, etc. The graveled walks of this very attractive place are lined with settees, occupied largely by the patients, male and female, who are loosely clad in a grotesque attire of striped linen, strongly suggestive of a circus clown or a penitentiary convict. A little exploration discloses several such courts, all enclosed by hospital pavilions, comprising in all perhaps twenty acres. The buildings themselves are old, dingy and devoid of many of the modern improvements—speaking tubes, electric signals, elevators, etc. They are generally, however, well heated, fairly ventilated and *scrupulously clean.* In the surgical pavilions we find at any time one or more wards empty and in process of renovation—scraping and whitewashing of walls, etc. The pavilions are under the jurisdiction of the respective professors, each of whom has his clinic-room connected with his wards.

Here we find not only 2,500 patients, but also an array of renowned instructors; and the question arises, shall we first visit Billroth or Bamberger, Brüeke or Stricker, Hebra or Neumann, Carl Braun or Spath, Stellwag or Politzer? As conductors of the expedition, I shall guide the JOURNAL reader first to Billroth, who heads the list alphabetically and perhaps otherwise, also.

We enter a room provided with seats for 250 persons, the center of which is an arena perhaps fifteen feet square. In the middle of this stands a revolving operating table, while around the sides are arrayed several cases full of glittering instruments. Suspended on the wall are two reservoirs marked respectively three per cent. and one per cent. (carbolic acid solution), extending from which into the arena are two rubber tubes terminating in stop-cocks. Several assistants in clean linen dusters, are busy preparing, while thirty or forty students lounge on the narrow, straight-backed, antiquated benches. About half an hour after the hour appointed for the opening of the clinic (9 a. m.), the hum of conversation is suddenly hushed, and there enters the Herr Hofrath and Professor Theodor Billroth—a man of fine

presence, distinguished by a well-formed head, benevolent countenance and prodigious abdomen. Without any formality he begins to speak, but unfortunately in a tone so low that his words are audible at the distance of only a few feet; the difficulty in hearing him is increased by his habit of sauntering around the arena and of occasionally seating himself in a chair with his back to as many auditors as possible. As a result, the attention of those present is bestowed upon books, papers, conversation, etc., and the great surgeon talks to perhaps a dozen listeners.

Meanwhile, his ten assistants, in the regulation linen duster, are preparing a patient—a process worthy of our attention. The anæsthetic is a mixture of chloroform, ether and alcohol; the inhaler a mere strip of canton flannel stretched over a metallic frame, held an inch or so above the nose and mouth. Only a few drops are administered at once, and the pulse is carefully observed by an assistant, who does nothing else during the entire operation. Meanwhile, another assistant having carefully washed his hands, exposes the part to be operated upon, shaves it carefully—even if it be a woman's cheek—scrubs it thoroughly with a nail brush, soap and water, deluges it with carbolized water, and then covers the adjacent parts with towels saturated with carbolized solution. A fourth assistant, during this interval, selects the instruments to be used and immerses them also in a carbolized solution; a fifth plunges about thirty sponges, previously washed and carbolized, into a jar of the same solution—a large number being required even for a trivial operation, because a sponge is used but once, and then re-carbolized. Finally, Billroth takes a scalpel and proceeds with great care and deliberation to make the necessary operation, occasionally stopping to explain to the class various points of interest. One of the most interesting features of the performance is the watchfulness and alacrity of his numerous assistants; they anticipate all the operator's wants; the needed instrument is at his elbow when he wants it; a sponge is constantly hovering over the wound, and yet everything is done quietly and smoothly, Billroth himself setting an example of courtesy and good humor toward all.

Every bleeding vessel, small as well as large, is temporarily closed by means of a "bull-dog" forceps, and finally tied with

catgut. At the conclusion of the operation, the lips of the wound are approximated by silver wires fastened with lead-plates, and then fixed in exact apposition by silk sutures set very close together, space being left only for several large drainage-tubes, which are tightly hugged by the lips of the wound, cut off close and fastened with safety-pins. The usual antiseptic dressing is then applied; great pressure is always made, the elastic bandage being frequently called into requisition for that purpose, applied, of course, outside of the gauze.

No reference has been made to the carbolized spray. As a skeptic in regard to the antiseptic theory, I am pleased to state that Billroth has discarded his atomizers, or rather has determined not to employ them until convinced by results that they are desirable. The other surgeons here have done likewise—I have not seen the antiseptic spray used in Vienna. Yet, as the reader has observed, he retains the undeniably valuable feature of Listerism—cleanliness—and has thus far secured all the good claimed for the Listerian system. The valuable points in Billroth's practice appear to be: 1, the careful ligation of all blood-vessels; 2, the accurate adjustment of the lips of the wound; 3, the compression of the wound. I have seen a dressing removed five days after a bloody operation on the face, and the wound showed no sign of suppuration, the edges entirely free from inflammatory exudate. Union by first intention is an ordinary result, even for some amputations.

Their management of fractures and their mechanical surgery in general is, in my observation, inferior to ours. They seem to lack much of the mechanical ingenuity and tact which characterize our surgeons—dressing fractures of the thigh solely by extension, *a la* Buck, for example. Yet it must be confessed that their results compare not unfavorably with ours, even in this respect. They have one advantage in the apparent fortitude of their patients, who endure suffering and inconvenience with wonderful equanimity. I say apparent fortitude, for the real explanation may lie in their insensitive nervous systems rather than in their self-control. I have seen an operation on the face continue three-quarters of an hour, during the last thirty minutes of which

no anæsthetic was administered, and yet no complaint was heard from the patient.

The amount of surgical material here is immense, as may be inferred from the fact that Billroth and Dumreicher give each a daily clinic from two to two and a half hours in duration, or from the other fact that Billroth recently performed eight ovariotomies in one week.

These clinics are but one of the valuable features of surgical instruction here. The chief assistants, three in number, give private courses in minor surgery, diagnosis and treatment of fractures and dislocations, applications of dressings, etc., to illustrate which they have access to all the surgical wards. They give also valuable courses in operative surgery on the cadaver—first performing the various operations—ligation of arteries, amputations, excision of joints, herniotomy, lithotomy, etc., before the class, and then superintending the performance of the same by the various students. Such a course costs about eight dollars, and requires sixty to seventy hours, during which each student performs every operation under the personal direction of the instructor. Such instruction is, of course, possible only where material is cheap and abundant, and this is eminently true of Vienna, where a dissecting ticket, costing $2.50, entitles a man to all the material he wishes for a *year*.

In the other departments of the hospital, in the great "Poliklinik" or free dispensary (also under the care of the university), and in the various laboratories of the college one finds equally good advantages, some of which will receive our attention later.

W. T. BELFIELD.

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RETENTION OF LIFE IN THE NEW-BORN.—Dr. Hoffman calls attention in the *Medical Record* to a case in which the cord formed a clove-hitch around the child's neck, so tight that for at least thirty minutes there was complete strangulation, yet persevering efforts at resuscitation were successful. He also speaks of other reported cases in which from one to four hours had elapsed without respiration, and life was retained.

# Domestic Correspondence.

## ARTICLE IX.

### EXAMINATIONS OF THE ILLINOIS STATE BOARD OF HEALTH.

*To the Editors—Gentlemen:* Permit me, through your columns, to ask the members of the Illinois State Board of Health what reasons they have for licensing under-graduates who are still attending medical colleges, and who have not yet completed the ordinary course of reading (three years), to say nothing of lectures?

Why is it that in several instances such students have been licensed, who have never practiced?

And how can we account for the singular coincidence that the students so licensed have, as a rule, been far below the average under-graduate in their class examinations?

The above questions are suggested by four or five cases which have fallen under my personal observation, and with which I am thoroughly conversant.

The same inquiries have doubtless suggested themselves to others, and for them and the profession of the State, as well as myself, I hope the State Board may give a satisfactory explanation.

PRACTITIONER.

[The facts given by our correspondent, are those which are known to members of the profession in this city, and, we have reason to believe, are known also to the members of the board. The trouble seems to be that, given a certain standard, those who are able to meet it, are entitled to certificates. The standard of the board in its examination should be evidently raised above the grade of a first year's medical student, where it is plainly at present.—ED.]

# Reviews and Book Notices.

ARTICLE X.—DIPHTHERIA; ITS NATURE AND TREATMENT. By Morell Mackenzie, M.D., London, Senior Physician to the Hospital for Diseases of the Throat and Chest, etc. Lindsay & Blakiston. 1879.

This is a work of one hundred pages, and gives in a concise manner the definition and history, etiology, symptoms, paralysis, diagnosis, pathology, prognosis and treatment of this terrible disease. It also has a chapter on laryngo-tracheal diphtheria, one on nasal and one on secondary diphtheria.

The author believes it to be a disease of antiquity, and that under various names it has existed "many thousand years," and that the exciting cause is a *specific contagion*. He speaks of the manner in which the poison enters the system, and the mode in which the poison is diffused.

Six different forms of the disease are described and the symptoms of the various stages in each fully and carefully considered.

We next find a short chapter on paralyses, which, excepting cardiac syncope, are regarded as the only serious sequelæ to the disease.

The chapter on diagnosis is not as full, perhaps, as could be desired, and the author, in his description of catarrhal diphtheria, presents the picture of what many in our midst call follicular or herpetic tonsillitis. Dr. Mackenzie, however, speaks of his hesitation to attribute the symptoms in this mild form to a disease "the very name of which is heard with consternation."

In the chapter on pathology, we find a description of the exudate in the words of Rindfleisch, and the parasitic theory of Oertel, so fully set forth in Ziemssen's Cyclopædia. The changes

also which may and frequently do take place in other tissues and organs, in the course of an attack of diphtheria, are here presented.

About everything known in regard to the treatment of this disease is fully considered under four heads; (1) The recuperative agents; (2) the alleged specifics; (3) the antiseptics; and (4) the expectorants.

Of the three concluding chapters, the one on laryngo-tracheal diphtheria (formerly called croup, as the author remarks), is very valuable. It discusses quite fully the identity or non-identity of the two diseases, and presents some facts which I do not now remember to have seen in any other work. The following quotation evidently represents the author's opinions: "To suppose that there are two kinds of follicular inflammations of the larynx, one in which the cause is the diphtheritic poison, and the other in which the cause is some other undiscovered influence, is totally opposed to all probabilities."

The book, to the busy practitioner, cannot but be a most valuable one. It contains, it appears to the reviewer, nearly every thing of known value in regard to this dreadful disease.

C. W. E.

ARTICLE XI.—THE STUDENT'S GUIDE TO DISEASES OF THE EYE. By Edward Nettleship, F.R.C.S., etc. Philadelphia: Henry C. Lea. 1880. Chicago: Jansen, McClurg & Co.

The author deemed it necessary to apologize for the publication of this book by saying that none of the manuals already before the public "appeared exactly to cover the ground most important for the beginner in clinical ophthalmology."

If this phrase means anything, we must regard it as the author's claim that his book covers more exactly than others the ground "most important for the beginner." To investigate the title to this claim was our object in examining this book.

We have found nothing in the body of the book, represented by its part II, in which this manual materially differs from similar books. This part II is devoted to the diseases of the eye; its chapters are arranged upon the anatomical parts of the eye—as

in all ophthalmic text-books—and the context is just as crammed as in other manuals.

The part III is a valuable addition, not found in similar books; it is a clear exposé of the intimate relation of many diseases of the eye to general diseases.

But we are sorry to say the first part of the work falls far below the grade we apply to a guide-book which is said to cover exactly the ground most important for the beginners. We know of nothing which is more important for the clinical student than a thorough familiarity with the correct methods of examining the eye. And a book intended to guide a beginner in his attempts at diagnosticating diseases of the eye, must particularly impress upon his mind the necessity and great value of a methodical examination; it must teach him to proceed always in a systematic way to be sure that nothing will escape his attention; and, above all, it should make him thoroughly acquainted with the appearance of the normal eye, so that he can appreciate any deviation from the normal appearance. Our experience in clinical teaching has satisfied us that the great difficulty commonly experienced by medical students in recognizing pathological alterations of the conjunctiva and anterior portion of the eyeball, is the natural or necessary consequence of their imperfect acquaintance with the normal appearance of these structures. The fewest students visiting the eye clinics have ever seen a normal conjunctiva or examined a normal iris carefully enough to tell at once a physiological variation of its appearance from a pathological alteration. All text-books on diseases of the eye—the guide-book before us included—are very particular to make the student thoroughly acquainted with the appearance of the normal fundus, because, without this knowledge, he could not tell the normal from the abnormal any better than a boy can tell the difference between wheat and oats unless he learned it. But the same works are strangely non-committal in regard to the appearance of the normal conjunctiva and other important parts of the eye. This seems to us a particularly serious defect in a book expressly written for the guidance and instruction of the beginner.

But if we find fault with the first part of the book for what it does not contain, we cannot even then approve of the arrange-

ment of its contents. Take the second chapter on "External Examination of the Eye." It begins with *irregularity of the corneal surface*, jumps to the *tension of the eyeball*, *mobility of the eyeball and squint*, *diplopia*, *protrusion of the eye*, and then returns to the anterior portion of the eyeball to examine the *blood-vessels visible on the surface of the eyeball*, the *color of the iris*, the *pupils*, and concludes with tests for *field of vision*, *refraction*, *accommodation*, *color-blindness*, etc. Such ill-arranged, disjointed description of the examination of the eye is a very untrustworthy guide to lead a student through the puzzling labyrinth of symptoms to a clear conception of their meaning; an examination after this pattern is too unmethodical to be recommended to a beginner.

But for this defect, the book would make a very useful little handbook for those medical students who have a natural aversion to the larger, more complete text-books on ophthalmology.

F. C. H.

ARTICLE XII.—HEARING AND HOW TO KEEP IT. By Charles H. Burnett, M.D., etc. Philadelphia: Lindsay & Blakiston; 1879; 16 mo., pp. 152. Chicago: Jansen, McClurg & Co. Price, 50 cents.

Among the many useful treatises in the series of the American Health Primers, this little book, from the able pen of Dr. Burnett, should become one of the most useful and popular. The crying ignorance of most people in regard to the proper care of the ear, calls loudly for the dissemination of the knowledge of hygienic rules written for the people in the plain language of the people. For no organ of equal importance in the whole human body is so flagrantly neglected, so roughly used, and so carelessly exposed as the ear. Any old woman's suggestion for the relief of deafness is readily accepted and acted upon; any drops said to cure earache or toothache, from the harmless sweet-oil to the harmful pain-killer, are put into the external auditory canal. On the other hand, people are amazingly indifferent to the most serious dangers for their audition; they make no attempt to stop a running from the ear of a child; they allow catarrh to impair their hearing many years, instead of having its

bad effect arrested right at the beginning. But we must not blame the ignorance of the laity alone for this indifference and carelessness. Too often they are encouraged by general practitioners who do not appreciate the grave nature of these aural diseases, and fail to urge the necessity of early and proper treatment. To these practitioners the perusal of this book will amply repay the sacrifice of the brief hour it takes to read it. It is arranged in three parts; Part I is a brief sketch of the anatomy and physiology of the ear; Part II treats of the chief diseases and injuries of the ear; and Part III contains general hygienic rules for the care of the ear in health and in disease. The following quotation, selected from the chapter on foreign bodies in the ear, may serve as a specimen of the author's style: "It may be said, for the comfort of friends and parents, that no bead, button, 'spit-ball,' bean, grain of wheat or maize, or any similar small object which a child could put into his ear, will do any harm, *if let alone* by all save one entirely conversant with the structure of the ear, and properly supplied with instruments for examination and treatment. If your child, therefore, gets any such foreign matter in its ear, rest assured such object has not gone beyond the reach of surgical skill. The harm in such cases *usually* arises from the unskillful means resorted to, in haste and consternation, for its removal. Let it alone until it can be properly removed." For this golden rule alone the book deserves our hearty recommendation.

F. C. H.

Article XIII.—Ophthalmic Out-patient Practice. By Charles Higgins, F.R.C.S., etc. Second edition. Philadelphia: Lindsay & Blakiston. 1879. Chicago: Jansen, McClurg & Co.

This is a specimen of the "multum in parvo" pattern, touching, in 116 small pages, upon everything, from "a discharge from the eyes" to the ophthalmoscope and the diseases of the fundus. Such rambles are very unprofitable for a student, for he finds—to use an expressive German phrase—*Zu wenig zum Leben und zu viel zum Sterben* (not enough to live and too much to die with hunger). F. C. H.

## BOOKS AND PAMPHLETS RECEIVED.

Homœopathy: What is It? By A. B. Palmer, M.D. Detroit: Geo. S. Davis. 1880.

Foreign Bodies in Surgical Practice. By A. Poulet, M.D. Two volumes. New York: Wm. Wood & Co. 1880.

Venereal Diseases, Including Stricture of Male Urethra. By E. L. Keyes, M. D. New York: Wm. Wood & Co. 1880.

Physical Diagnosis (Hand Book). By Dr. Paul Guttmann. New York: Wm. Wood & Co. 1880.

Atlas of Histology. By E. Klein, M.D., and E. Noble Smith, M.D. Part X. Philadelphia: J. B. Lippincott & Co. 1879.

Ethylization: The Anæsthetic Use of the Bromide of Ethyl. By R. J. Lewis, M. D. (Reprint from Medical Record.)

Modern Abuse of Gynæcology. By Clifton E. Wing, M.D., Boston.

Rectal Feeding in Disease. By W. W. Potter, M.D., Batavia, N. Y.

Thirteenth Annual Report of Cincinnati Board of Health, for the year ending Dec. 3, 1879.

Importance of Anal Fissure in the Treatment of Diseases of Women. By R. S. Sutton, M.D., Chicago.

Transactions of American Dental Association, Nineteenth Annual Session Chicago: Knight & Leonard.

A Case of Intrauterine Ichthyosis. By Wm. R. Smith, Sr., M.D., Cairo, Ills. Three wood cuts.

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THE late concours held at Rush Medical College for the position of Clinical Adjunct to the Chair of Diseases of Children, resulted in the appointment of Dr. J. Suydam Knox, of Chicago, who is already well known to the profession as a scientific man, and, moreover, highly esteemed socially.

# Editorial.

At a meeting of the Chicago Gynæcological Society, held Dec. 27, 1878, the subject of placenta previa being under discussion, Dr. Edward Warren Sawyer called attention to a peculiarity of the uterine tissue at the placental site which had not before been observed. THE JOURNAL AND EXAMINER, for Feb., 1879, page 175, contains a report of these remarks. The speaker said: "Another point is one which I have never seen alluded to in the books, namely, the friability of the uterine tissue upon which the placenta is developed." After speaking of two fatal cases which he thought due to a tear of this friable area, he said: "In the light of this experience, I would in future cases, use extreme care in all procedures which would stretch the uterine tissue in the cervical zone, upon which the placenta is attached."

The *London Lancet*, for Oct. 25, 1879, contains an article by Dr. George Roper, of London, in which the writer reports the same observation, but made independently of Dr. Sawyer.

*The Boston Medical and Surgical Journal*, Jan. 1, 1880, alludes to this important observation of Dr. Roper, but seems ignorant of the fact that Dr. Sawyer ante-dated Dr. Roper by nearly a year. In a recent letter from the latter to Dr. Sawyer, the writer says: "You have clearly hit on the same observation as myself;" and further: "I am by no means ambitious as to the originality of this observation, and as I shall probably write an article on placenta previa, when I have time, I shall have much pleasure in referring to your own observations."

The London gentleman having thus politely admitted the priority of Dr. Sawyer, we feel it to be just to call attention to the subject in this manner.

# Selections.

TWO NEW ANÆSTHETICS. Read before the Montgomery County Medical Society. By J. C. REEVE, M.D., Dayton, Ohio.

The dissatisfaction of the profession with the two great anæsthsthetics, chloroform and ether, has long been manifested. This feeling has its origin in the dangers of the one, which seem to be more manifest with every year, and the practical disadvantages of the other, and has led to constant investigation of new compounds or trials of mixtures of the two. Bichloride of methylene is the only new agent which has attained any sound reputation, and this has scarcely been used at all, except by a single individual; and of the various mixtures of chloroform and ether, some of them used here and there to considerable extent, it may be said that no one of them has succeeded in gaining such an amount of confidence as to make its use general.

At present two new articles are rapidly coming before the profession. The claim is made for each that it is more pleasant and manageable than ether, less dangerous than chloroform. It is my purpose to-day to call your attention to these two agents, and present briefly the testimony in their favor.

The first is the bichloride of ethidene. This is a liquid, scarcely to be distinguished from chloroform in appearance or smell, with a boiling point of 58° C. and a vapor weight of 3.428. It is isomeric in chemical constitution with the dichloride of ethene, a substance which is very dangerous for inhalation, the formula of each being $C_2 H_4 Cl_2$. Ethidene, as it is called, is receiving attention in England, the result of the labors of a committee appointed by the British Medical Association for the investigation of anæsthetics, partial reports of which body are published in the

*British Medical Journal* of January 4th and 25th, and June 21st, 1879. The origin of the committee will be everywhere received as a guarantee of the character of the work done, and it is needless to say that the most thorough care and scrupulous exactness are shown. The experiments upon animals were by opening the trachea and administering the vapors of different anæsthetics through a tube, the arterial pressure being measured by the sphygmograph, and direct observation made of the heart's action, the sterum having been removed. Under ethidene the arterial pressure was somewhat diminished, but not nearly so much as by chloroform, and never to total extinction; nor were there the wide variations at different times in the same animal that chloroform caused. In frogs and rabbits the anæsthetic condition was produced in from four to five minutes, and kept up from twenty-six to forty minutes, the heart beating steadily all the time. In dogs anæsthesia was produced in from two to three minutes, without failure of the heart action. A marked and immediate effect upon cardiac action was produced by substituting chloroform vapor for the ethidene.

Clinical experience with ethidene has not yet been extensive. It was used already by Snow, and about three pages of his work on anæsthetics (1858) are devoted to it under the name of "monochlorated chloride of ethyl." The difficulties of manufacturing it and obtaining it pure prevented him from continuing his investigations; but he expresses the opinion, based on its chemical qualities, that it is pretty certain that it would not be liable to cause the sudden deaths which have occasionally been produced by the administration of chloroform, even if it were given freely and with no great care. He reports sixteen cases in which he administered it for various operations. In one the operation lasted ten minutes, and another must have been of longer duration, as it was for ununited fracture of the tibia and fibula. In all it acted well, and no vomiting followed, although in three cases a meal had been taken just before the inhalation. How much more information upon this anæsthetic we should have had from the lamented Snow it is impossible to say. While writing the sentence which gives the above facts, he was seized with the paralysis, which was a prominent symptom of his last brief illness.

There is a report of six administrations in the *Medical Times and Gazette*, of January 18th, 1879, by Dr. Thomas Bird, of Manchester.* Two of the patients were children, one aged three months, and the other two years and nine months. The longest time of administration was sixteen minutes. It seems to have acted kindly in all, but sickness followed in one case.

The report of the committee above alluded to gives six administrations to patients, and states that it had no injurious effect upon respiration, no indication of asphyxia were shown, and the heart's action was unaffected, anæsthesia was promptly produced, was complete, and slight retching followed in two cases. The committee indorses the opinion of Steffin, as given in Binz's Therapeutics, that, as compared with chloroform, ethidene is pleasanter, more rapid in action, produces no excitement during, nor vomiting after administration, that there is a more rapid recovery from it, and, altogether less danger attends its use.

I have not been able to obtain a specimen of this article, or I should have had some practical observations to record. Its price will, however, prove a serious bar to its introduction. The importers quoted it to me at three dollars per ounce.

Since this article was written I have had an opportunity of consulting Kappeler's new work on "Anæsthetics,"† and find that his very favorable notice of this anæsthetic closes with the following discouraging paragraph:

"Unfortunately the occurrence of a death from this article in Berlin, destroys early the hopes which had been cherished of it and will not permit of a more extended trial."

No particulars are given.

The second new anæsthetic is bromide of ethyl, or hydrobromic ether ($C_2 H_5 Br.$) It is a volatile, colorless liquid of pleasant ethereal odor, spec. gr. 1,419, thus almost as high as chloroform. It boils at 106° F. Its vapor density is 3.734; and an important characteristic of the vapor is that it is not inflammable, thus the dangers arising from administering ether by candlelight are obviated. It is needless to say that this is a very important point.

* Quoted from Turnbull on "Artificial Anæsthesia," Second Edition, 1879.

† Anæsthetica. Lieferung xx of Bilroth's *Deutsche Chirurgie*, 1880.

For the introduction of this article into practice we are indebted to Dr. Lawrence Turnbull, of Philadelphia, one of the surgeons to Jefferson Medical College Hospital; and in his work on "Artificial Anæsthesia" (sec. ed. 1879) will be found a full account and description of it.

Experiments upon animals with this liquid are lacking. A number are detailed in Dr. Turnbull's work, but they are not such as are to be desired, or as are demanded in a question of the comparative merits or the safety of a new anæsthetic. Merely to state that frogs and dogs were anæsthetized, the amount of the vapor used and the time they were under its influence, is not enough, and we very much need some careful and accurate experiments and observations with this remedy, such as those carried out by the British committee in investigating ethidene.

But if in experiments on animals we are behind ethidene with hydrobromic ether, our clinical experience has been greater. Dr. Turnbull details in his work the particulars of twenty-five administrations for various operations. Three of the cases were children of six, three and three years of age. We copy his conclusions:

| | *Min.* | *Sec.* |
|---|---|---|
| Longest time taken to place under anæsthetic influence... | 5 | |
| Shortest, ditto.... ..... ..... | 0 | 30 |
| Longest time under influence..... | 60 | |

Largest quantity consumed, eight ounces. Vomiting occurred in four cases after the administration; one of the patients had taken dinner before the operation.

Dr. Turnbull's example has been followed by others, notably by Dr. R. J. Levis, of Philadelphia. His experience was published in the *Philadelphia Medical Times*, and has been copied generally in medical journals, so that it is undoubtedly familiar to you, and I need give only the points generally. He has been so much pleased with it that he now uses it exclusively as an anæsthetic; has administered it for various operations, minor and capital; once for amputation of the thigh; forty minutes is the longest time of administration stated, and eleven drams the largest quantity used. He states that general excitement and struggling occur much less frequently than with chloroform or ether; that it does not influence the circulation, except to sometimes produce

a slight increase in the rapidity of the heart's action; that it influences the respiration but little, and that nausea and vomiting appear to occur much less frequently than after the other anæsthetics. There are two prominent characteristics of the action of hydrobromic ether, rapidity of action, and rapidity of recovery from its effects. These were shown in Dr. Levis' observations. He estimates that its full effect is produced in one-third less time than that of chloroform, and recovery is even still more rapid.

The following trials of this new anæsthetic were made to test its merits, and to obtain personal experience of its effects. For the record of occurrences after loss of consciousness and for care and attention during administration, I am indebted to my friends Drs. Pilate and Conklin:

March 14th. Four hours after eating a moderate breakfast I proceeded to inhale the bromide of ethyl, in the recumbent position, from a bottle just opened, labeled "1 oz. bromide ethyl." About one-fourth of the contents was poured into an Allis' ether inhaler. The first and immediate sensations upon inhaling it were a sharp pungent impression on the air passages, a sense of warmth, rapidly extending, and exhilaration. Already with the second inspiration I felt a decided influence upon the brain and began to talk, anxious to continue speaking as long as possible, and to state my sensations. A rapid beating in the ears is a constant symptom with me in taking chloroform, and immediately precedes entire loss of consciousness. I remarked its presence now, and also its early appearance. It could not have been later than the third or possibly the fourth inspiration when I noted it, and this, as with chloroform, was the last sensation.

Upon opening my eyes I immediately collected myself, and remembered all; could talk clearly, and had no confusion of thought. I felt a slight sense of nausea and a feeling of languor. Eight minutes afterwards I got up and walked about without dizziness, and am confident I could have done so sooner. I did not attempt it sooner, because I felt that sickness would ensue if I arose. The feeling of nausea remained until I commenced eating my next meal, about forty minutes later.

Pulse at beginning 80, just after ascending stairs. Two drams administered. Symptoms began to be manifested after two respi-

rations. Spoke of general warmth, pleasant sensations and beating in the ears. Anæsthesia produced in one minute and a quarter; in another quarter minute it was profound, as tested by knife point. Pulse during the first minute ran up nearly to 100, then fell during next minute to about 70, feeble and intermittent. Pupils unchanged, normal; no struggling or excitement; but tetanic clutching of the inhaler, so that it could be gotten away only with difficulty. The anæsthesia lasted only one minute and a half, then awakening without mental confusion. Pulse seven to eight minutes later, 64.

I was not satisfied with this experiment, particularly in regard to the irregularity and intermittence of the pulse, not a very assuring symptom in anæsthesia, and a result not agreeing with other observers. I had a suspicion from this fact and from the nausea that the specimen was not pure. The bottle bore the name of a house which is always a guaranty of the good quality of medicines; but in the early period of manufacture of a new article, it would not be surprising if perfection was not immediately attained. I therefore obtained another specimen*, and one week after the above trial again inhaled it. Being in the recumbent position, four hours after eating, one dram, by measure, was poured in Allis' inhaler. I aimed to take it slower this time, and counted the respirations aloud to mark when conscious action ceased. I immediately felt the same grateful and pervading glow of warmth all over the body; counted to the seventh inspiration; beating in the ears was again the last recognized impression.

Pulse before, 80; at the end of the first minute, 120; one and a half minute at the rate of 100; at the end of two minutes, 78. No irregularity or intermittence. Pupils unaffected. Totally unconscious in one minute. Consciousness returned in three minutes.

It was my design to push the inhalation farther this time, and to test muscular relaxation as well as to decide in regard to the irregularity of the pulse. Feeling that this had not been done, after about fifteen minutes, I took it again. Two measured drams were poured on the inhaler, and I placed it over my mouth and

* From the house of John Wyeth and Bro., Philadelphia.

and nose. The impression was much stronger on the nose and air passages, and the first inspiration made me cough. I then counted to third inspiration and was gone. Pupils the same as before, unaffected; pulse, before taking, 78; at the end of first minute, 124; one and a half minute 100; and of two minutes 78; no irregularity or intermittence. Anæsthesia in one minute. At the end of three minutes from the time of beginning, got up and walked across the room, and could have staid up. As an effort at prolonged anæsthesia this was not, therefore, a success. In eighteen minutes I was on my way driving to see a patient. I had not the slightest nausea after these two inhalations; felt, if anything, better than before, a sense of what the French call, *bien-être.*

My next trial of the agent and first attempt at administration was not satisfactory. The patient was a man aged about fifty, a wiry, muscular fellow, of the type and build likely to give troublesome symptoms with any anæsthetic. He was placed on the table for an operation for hæmorrhoids by Dr. Conklin. I had brought with me for the administration a large conical sponge, with which I constantly gave the A. C. E. mixture, and have no difficulty. Upon this I poured two drams of hydrobromic ether, and placed it over his mouth and nose. After one, long deep inspiration his face became deeply flushed, and he soon began to talk and then shout. More of the liquid was poured on the sponge; but his movements interfered with the inhalation of it with promptness; muscular rigidity then came on and was marked; respiration was very nearly if not quite stopped for a time by tetanic spasm of the chest. These symptoms were almost as bad as I have ever seen from ether, chloroform or the mixed vapors. I have seen worse muscular action and rigidity, but this would pass for as bad as generally met. During this time the ether was rapidly added until the supply was exhausted (13 drams), and sufficient relaxation was not produced to make the operation feasible. No observations could be made, of course, of the patient's pulse. He recovered consciousness quite rapidly, as compared with other anæsthetics, and suffered no unpleasant after effects.

This was not, of course, a fair trial of the remedy. The mode of administration was decidedly faulty. It is an ether and must

be given as an ether; and that this is imperative is the lesson to be learned from this failure.

My personal experience with hydrobromic ether fully sustains the observations of others as to its exceeding promptness of action, and the rapidity with which recovery from its effects takes place. I can also say that it is pleasanter to inhale than chloroform, which is not very unpleasant, and infinitely pleasanter than ether.

Our experience must be much increased, of course, before judgment can be passed as to the relative merits of this anæsthetic. At present the testimony is positive as to the rapidity of action and efficiency, and decidedly in its favor as to safety.

I append the opinion of Dr. Levis, delivered as the result of his more extensive and later experience. "I have used bromide of ethyl in the surgery of two large general hospitals and in private surgical practice, under the most varied circumstances, which could be required to test the merits of an anæsthetic. In my use of it, in the most abnormal conditions of debility and shock of injury, in capital operations, through protracted periods of administration, in patients from early infancy to extreme old age, it has always proved satisfactory, and free from manifestations of danger. I express my conviction that it is practically the best anæsthetic known in the profession."*

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CONTAMINATION OF DRINKING WATER BY FILTRATION OF ORGANIC MATTER THROUGH THE SOIL.† By VICTOR C. VAUGHAN, M.D., PH.D., Lecturer on Medical Chemistry in the University of Michigan, assisted by P. E. NAGLE.

There seems to be a wide-spread belief that in disposing of decomposing organic matter it is only necessary to remove it from sight by burial in the earth. All through the rural districts and in the towns and many small cities of this country, privy-vaults, cess-pools and even cemeteries are located in close proximity to cisterns and wells. A few feet, or at most, a few rods of inter-

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*N. Y. Medical Record, March 27th, 1880.

†Read before the Sanitary Convention at Detroit, Jan. 7, 1880.

vening soil are considered as sufficient to prevent the contamination of the water from these receptacles of decomposing matter. There is a general belief in the power of the soil to retain or to remove in some way all organic matter from solutions. Not infrequently a privy-vault may be seen located within ten or twenty feet of a well or cistern, and often the slope of the land is toward the well or cistern. During the past three months the authorities of a growing village in the interior of this State have, in spite of the remonstrance of certain citizens, located a cemetery within a few rods of a deep well, the water of which is used for household purposes.

During the summer of 1878, the sanitary condition of certain premises in Ann Arbor was as follows: The cistern, located at the rear of the house was about twenty feet deep, and about six feet below the surface it leaked. Of course if water could pass out, it could as readily pass in. Fifteen feet back in the yard, and slightly elevated, stood the privy. As soon as the warm months of summer came on, the water of the cistern became so offensive that it could not be used. The odor was that of the privy, and the water swarmed with microscopic animalculæ, and with others large enough to be seen with the unaided eye. All the water was removed and the cistern thoroughly cleansed. A few days later a heavy rain refilled the cistern, but within a few weeks more the water again became unfit for use, but was not so bad as it had been before the cleaning. During the remainder of the summer and fall the family obtained their drinking water from another source. During the winter season the water of the cistern so improved that after being filtered it could be used. But as soon as the warm weather of the following summer approached, the water again became unfit for use and was almost or quite as bad as it had been during the previous summer. This is only an illustrative case, and I know of similar ones in Ann Arbor.

Such instances as this caused us to doubt the power of soils of completely preventing the filtration of organic matter in solution. We determined to endeavor to answer, by experimental investigation, the following questions: (1.) To what extent are organic

substances removed from solution by filtration through soil? (2.) Do different soils differ in their capability of thus removing organic matter? It must be noted here that the organic substances to be removed are held in solution, and not merely in suspension. The principal object in the filtration of natural waters for the supply of towns and cities is the removal of suspended matter. Again, the waters with which our experiments are concerned, and with which, as we shall endeavor to prove, drinking water is often contaminated, should be designated as *polluted* water, *i. e.*, the amount of injurious substances which they contain is sufficiently great to render their direct use dangerous.

The first thing necessary to an investigation of the first question, was to select some soluble organic substance, for which there are known exact methods of quantitative determination; for it would be necessary to determine the amount removed from solution by making quantitative determinations of the amounts in solution before and after filtration. For this purpose urea was selected, and, in order to have the conditions as natural as possible, the solution selected for filtration was urine. Urea is also easily decomposed, and experiments performed with this substance would have the advantage of the conditions being most favorable for the removal of the organic substance. It is well-known that urea is not far removed from inorganic matter and that its transformation into carbonic acid and ammonium is easily accomplished.

One cubic foot of the ordinary gravel soil, from four feet below the surface, was obtained and so arranged that fluids could be poured upon its surface (which was one foot square) and the filtrate collected. The amount of urea in a specimen of urine was then estimated with mercuric nitrate (the chlorides having previously been removed), a measured quantity of this specimen was poured upon the surface of the soil, and the urine which passed through was collected, measured and its contained urea estimated. A certain amount of urine (which was equal to that passed by one person in twenty-four hours) was poured upon the soil at one time. The filtrate from this was collected, measured and its contained urea estimated. This was repeated for a number of days or until the filtrate was found to contain as much

urea per c. c., as the urine did before filtration. The results of these experiments are given in the following table:

| | Urea Poured on Soil. | Urine Passed Through | Total Urea Poured on in Solution. | Total Urea in the Filtrate. | Urea per 100 c. c. before Filtration. | Urea per 100 c. c. after Filtration. |
|---|---|---|---|---|---|---|
| | | | Grams. | Grams. | Grams. | Grams. |
| First Day... | 1,760 c. c. | 938 c. c. | 49.28 | 15.00 | 3.8 | 1.6 |
| Second Day. | 965 c. c. | 740 c. c. | 25.7 | 14.06 | 2.6 | 1.9 |
| Third Day.. | 860 c. c. | 600 c. c. | 13.76 | 9.60 | 1.6 | 1.6 |
| | 3,585 c. c. | 2,278 c. c. | 88.13 | 38.66 | | |

The soil, which had now become saturated with organic matter, was removed from the filter, spread out upon a clean board so as to be exposed to the air, left in this condition for twenty-four hours, and then returned to the filter. Urine was poured upon this soil, and the amount of urea removed by filtration was estimated as before. In this case it was found that the urine, before filtration, contained 2.1 grams of urea per 100 c. c., and after filtration, only 1.6 grams; or the soil which had been saturated with the organic matter was so far purified by exposure to the atmosphere for twenty-four hours that it now removed one half a gram of urea from every 2.1 grams poured upon it in solution.

From these experiments it is very evident that the ordinary gravel, which constitutes so large a proportion of the soil of this State, has but little effect in removing or oxidizing soluble nitrogenous substances from solutions which are allowed to pass through such soils. Furthermore, it became evident that such soil soon becomes saturated, and then no longer has any effect upon the removal or oxidation of these organic substances. The amount of urea necessary to thus saturate one cubic foot of soil was 88.13 grams, or that contained in 3,585 c. c. of urine. Of course this urine contained a small quantity of other organic substances, so we shall not claim that the following computations are exact; but we will be careful not to overstate them. Suppose that the total solid excretions of an adult are 112 grams per day (this of course is very low), then the solid excretions from a family of six persons each day would be sufficient, when

properly dissolved, to saturate over seven cubic feet of gravel soil. From this it is evident that only a few weeks or months would suffice, with a proper amount of rain fall, to saturate every cubic foot of soil to the depth of five or ten feet in a small yard, in which we often find privy vault, cess-pool and cistern or well in close proximity. Of course if these substances are not destroyed by filtration, they will be carried with the water which passes through the soil wherever such water may go. If the water gains an entrance to the well it will carry with it the substances in solution. At this rate it would require more than a few feet or even rods of intervening soil to prevent the contamination of the water of wells or leaky cisterns from privy vaults, which often are not cleaned once a year, or from cess-pools or cemeteries.

But there is another consideration that must be mentioned in this connection. The gravel by itself forms one of the poorest of filters, because the particles are not all of the same size and shape, consequently the interspaces are also of unequal size, and the liquid, meeting with less resistance in one direction than in others, soon collects and forms streamlets which may convey the polluted water in quantity toward, or even into the source of the water used for household purposes.

This brings us to a consideration of the second question proposed to be investigated by experimental investigation, i. e., Do different soils differ in their capability of removing organic matter from solution? The gravel having been already tried we did not make any further experiments with it; but we next experimented with sand and loam in the same manner as we had done with the gravel. The comparative results only will be of interest. While urine (3,585 c. c.) containing 88.13 grams of urea, saturated one cubic foot of gravel, urine (4,000 c. c.) containing 89 grams of urea did not saturate one cubic foot of loam, but after this amount of urine had been used, the loam still removed four-tenths of a gram of urea from each 100 c. c. of urine. The sand was also better than the gravel but was not as good as the loam, for 88 grams of urea in 4,000 c. c of urine did not saturate the sand, which still removed two-tenths of a gram of urea from each 100 c. c. of urine. Thus of the three—gravel, sand

and loam—the loam is most active, and the gravel least active in the removal of organic matter from solution.

The explanation of this may be conceived to be as follows: First, the inequality in size and variety in the shape of the pieces of gravel (as has already been referred to) allows the formation of streamlets, and the solution thus passes through the gravel more rapidly than through either the sand or loam. This is a physical defect in the gravel as an agent for the removal of the organic matter. A second cause is the greater porosity of the loam. As was shown by the renewed activity of the gravel after it had been exposed to the atmosphere for twenty-four hours, oxygen is the agent which acts chemically in the destruction of organic matter, or, rather, in its conversion into inorganic matter. Now the more concentrated the oxygen the more energetically will it act. As is well known, the atmosphere in the minute pores of the soil is condensed.

Oxygen has justly been termed the scavenger of creation, and the free access of this gas is necessary in order to render the excretions of animals harmless. This good work is begun in the living body; for the hæmoglobine of the red blood corpuscles carries oxygen to all the tissues, and by the action of this oxygen, poisons introduced from without and poisons generated within the organism are rendered inert and fitted for excretion.

Animals are formed by the agency of plants out of the constituents of earth and air. "Whatever in our bodies is inorganic originated in the soil; whatever in our bodies is organic originated in the atmosphere. Whatever in our bodies is inorganic will return to the soil; whatever in our bodies is organic will return to the atmosphere. The carbon of the carbonic acid of the air becomes the carbon of the cellulose, starch, gums, resins, etc., of plants; it becomes the carbon of our blood and muscle; and from our bodies it is returned to the air. Thus the changes of matter form an endless chain whose first link is also its last." (Gorup-Besanez.) Now the agent which converts the organic tissues of the animal into inorganic substances is oxygen; and this is the proper agent to use in rendering animal excretions harmless. This is the reason why the dry earth closet, with a pipe to conduct the gases into a chimney,

is the best method (at least for the rural districts and small cities and villages) of disposing of fæcal matter. The dry earth takes up the oxygen, which is then condensed in the pores and acts with double energy. Instead of burying these substances down in the earth where but a limited supply of oxygen can reach them, it is far better to allow the free access of the atmosphere. Burial simply aids in the preservation of organic substances, and, as we have seen, they may be carried under the ground into our wells and thus poison us. Instead of simply burying these noxious substances and then thinking ourselves secure from them, it would be far better to render them inert and even useful, as may be done.

As to the location of cemeteries in the vicinity of wells, we think that our experiments show that the decomposing matter from one body would be sufficient to pass a long distance, especially through gravel soil, before it would be completely destroyed. We honor the dead as highly as others do, but it is not right that the dead should be allowed to murder the living.—*From the Sanitarian.*

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PYROGALLIC ACID IN PHAGDENIC CHANCRE.—Vidal. (*Journ. de Méd.*, Feb., 1880, p. 68.)

The author has found a new use for pyrogallic acid, which he uses a good deal in treatment of skin diseases; that is, in the treatment of phagedenic chancres. In two cases the result was almost immediate. In the first case there was phagedenic chancre of rapid march, accompanied by a suppurating bubo, also phagedenic. The chancre was dressed with an ointment of pyrogallic acid and the bubo was touched only with the same; in a few days the ulceration was arrested. The second case was a chancre from inoculation and had become phagedenic, the size of a five franc piece. The same result was obtained in three days and cicatrization began. The ointment employed was at first 10 per cent., then 20 per cent. The strength should vary according to circumstances and the sensitiveness of the patient.

# Summary.

*Collaborators:*

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## PRACTICAL MEDICINE.

DEFORMITIES OF THE VULVA PRODUCED BY DEFLORATION, MASTURBATION, SAPHISM AND PROSTITUTION.—Dr. Martineau. (*Le Praticien* and *Gazette Obstét.*, March 20, 1880, p. 87.)

Dr. Martineau has recently given a series of lectures at the Lourcine hospital, on this subject, too little known by physicians, and generally excluded from didactic works; we extract a few passages.

The external genital organs of women, as the result of their functions, of vicious habits, or of pathological lesions, undergo modifications in their aspect, and suffer deformities, which put the practitioner in the way of determining the lesions which affect them, and are to him the source of numerous indications. These deformities may be seen in young girls, in married women, as well as in prostitutes addicted to the most abject practices.

Before entering upon a description of vulvar deformities, Dr. Martineau describes the anatomy and normal aspect of the genital parts in the little girl, the girl at puberty, the married woman, etc. In the little girl the vulva is vertical, and its opening looks directly forward. It is partly open at the upper portion, and separation of the labia majora allows a view of the clitoris, which appears prominent, and the orifice of the meatus urinarius; it is closed, on the contrary, at its lower portion. An opposite condition is seen in girls at puberty; a disposition still

more appreciable in women after the first sexual relations. The vulva is directed obliquely from above downwards, and from before backwards. The separation of the labia majora is slight above, and finally disappears completely, so that the clitoris and meatus are totally concealed; on the contrary, the vulva is partly open at its inferior portion. The amount of hair seems to be in proportion to the complete development of the internal genital organs. The hairs are sometimes rare and disseminated in women in whom the uterus has not acquired its normal development, and who are in consequence sterile. (The importance given to this sign by the Jewish law to determine the nubile age of women is well known. According to the precepts of the Talmud, the woman shall have at least two hairs upon the vulva to be reputed nubile.)

Deformities of the vulva are the result of *violent defloration* or of divers vicious habits: *masturbation* and *saphism*, or of *prostitution*.

The deformities seen after violent defloration are all the more characteristic in that they are produced in younger subjects. They are principally seen in girls from 6 to 15 years of age. According to Tardieu and Toulmonche, fifty-nine times the deformities existed in girls under 11 years; thirty-two times from 11 to 15; four times from 15 to 20; once in a maiden of 41 years. At Lourcine I find every day that these deformities may be produced at any age, and that they are as characteristic in adult women as in little girls. Sometimes they are the result of a disproportion of the genital organs, which renders the intromission of the male member difficult and impossible. Sometimes they result from imperforate vagina, from the presence of vertical bridles, from a vicious disposition of the pelvis or inferior limbs. Finally, I might mention the height of the perineum, by virtue of which, in certain women, the fourchette seems to be carried toward the pubis.

These deformities consist, in the girl, in a premature development of the sexual parts, a precocious nubility, and especially the formation, at the expense of the vulvar canal, of a sort of infundibulum, more or less wide and deep, capable of receiving the extremity of the penis, and very analogous to that which has

been indicated at the anus as characteristic of pederasty. When this infundibulum exists, the physician, in practicing the vaginal touch, has the sensation of a veritable sexual canal, preceding the true vaginal canal. The hymen is generally ruptured, but at times, however, it is found at the bottom of the infundibulum, still preserving its semilunar form, and slightly lacerated on one of its borders. Such are the typical characters of deformity of the external genital organs produced by incessant and *sometimes unfruitful* efforts of the defloration.

Deformities produced by the three other causes are met with in two-thirds of the women who frequent the Lourcine. The vulvar deformities due to masturbation are not the appanage of women of gallantry; they are encountered in all classes of society. This practice also gives rise to various troubles in the organism, bearing upon the nervous system and upon nutrition. It plays, moreover, in the pathogeny of uterine affections, a rôle which should not be disregarded; to it a good many cases of constitutional metritis owe their existence. Moreover, masturbation retards their termination, and is a frequent cause of relapses and recurrences. Masturbation, in women, is the ordinary result of a slight friction of the clitoris with the finger, with the penis, or with the tongue. In the latter case it has received a particular name—saphism or tribadism. Sometimes, also, it is produced by the rubbing together of the thighs, strongly pressed one upon the other.

The deformations are sustained by the clitoris and the labia minora. They consist especially in modifications of structure resulting from the habitual congestion of which these organs become the seat. On the clitoris they affect the sheath and glans clitoris; the clitoris takes on an exaggerated development; its length, an average of (1.1 inch) 3 centimeters, may become doubled. Parent-Duchatel, in his work on "Prostitutes in Paris," mentions three prostitutes in whom the clitoris had a remarkable development; in one of them it had a length of about (3 inches) 8 centimeters, and in volume it equaled the index finger. At the same time, the glans clitoris is swollen, red, violaceous; it extends beyond the sheath—sometimes is entirely procident. The sheath is loose, long, wrinkled, forming a series

of folds; its anterior extremity is detached from the glans clitoris, and leaves it uncovered.

The labia minora are elongated, more voluminous, lax, pendant, triangular; their rose color has disappeared, and they have become brown, grey, or slate-color; at the same time there is seen upon their internal face small yellow prominent points; the sphincter of the bladder may be dilated to such a degree as to produce incontinence of the urine, and I am inclined to believe that a good many cases of incontinence of the urine in girls, and even in women, have for their cause masturbation.

When masturbation is produced by friction of the thighs against each other when crossed, certain peculiarities are observed; the sheath is relatively but little developed, compared with the volume which the glans attains; on the contrary, the latter is hard, voluminous, prominent, and has a club-shaped extremity. The labia minora are also less developed than in other cases.

It would be interesting to know if the third manner of masturbation—saphism or tribadism—produced upon the vulva as characteristic deformations as the preceding. This unnatural practice is nowadays one of the most frequent in all classes of society, as well among married women as in prostitutes.

Saphism is very much in honor among the patients who frequent the Lourcine hospital, but it is difficult to determine exactly its characters, for it is always combined with handling. In order to make this study complete and satisfactory, it would be necessary to observe women united in some numbers, such as those who live in Oriental harems; it is indeed known that saphism is very frequent among these women. However it may be, in women I have examined, who have admitted this practice, it appeared to me that the border of the sheath, while detached from the glans clitoris, as in handling, was more voluminous and more hypertrophied than the rest of the organ. The glans clitoris may be also more developed, more prominent; its club-shape, as in the second mode of masturbation, would be in accord with the act of saphism, in which there is not only friction, but also suction of the extremity of the clitoris.

The sad effects of these practices should be combatted with all the resources of therapeutics. I do not believe it necessary to

practice cauterization or ablation of the clitoris. We should endeavor to remove the cause which induces patients sometimes to masturbate. Thus, in little girls, the vulvar inflammation should be treated; in young girls, the oxyuris vermicularis; in married women, metritis and pruritus vulvæ must be treated, at the same time that the nervous system is acted upon by giving bromide of potassium.

Does prostitution give rise to deformations of the external genital organs? Authors have different opinions in regard to this. I cannot accept the opinion of M. Charpy, who thinks that the prostitute undergoes in her genital organs a series of deformations which depend upon the abuse which atrophies and the irritation which hypertrophies. All I can say is, that it appears to me that there exists a peculiar aspect of the genital organs in women, whether prostitutes or not, who abuse coitus.

Thus, in a young girl aged eighteen, deflorated since six months only, and who had never had an abortion and was not pregnant, I found the labia majora enormous, lax, wrinkled, pendant, bluish; the labia minora were normal, clitoris not developed, and the vulva open. She had metritis, had not had syphilis, and was not addicted to masturbation or saphism.

Struck with this aspect, which resembled rather the genital organs of a woman of forty who had had children, than those of a girl of eighteen, I interrogated her upon her manner of living, and she admitted that for six months she had not passed a single day without three or four sexual connections. These deformities have, then, a value which I cannot disregard, but they do not characterize prostitution; they may be lacking in the most active prostitutes; while in a young girl they indicate excessive abuse of coitus.

LOCAL MORBID TEMPERATURES IN AFFECTIONS OF THE ABDOMEN.—(*Bulletin de l'Académie de Médecine*, Dec. 9, 1879. By Monsieur Peter.

M. Peter, who has been studying local morbid temperatures for many years, having published articles on that subject as early as 1864, has lately detailed before the French Academy of Medicine four well marked cases of differential diagnosis between

ascites and other affections of the abdomen, the diagnosis having been substantiated by post-mortem examinations. The following is a brief summary of those cases. (We would state that M. Peter uses by preference the ordinary thermometer, although he is acquainted with the various supposed improvements involving great cost.)

CASE I.—*Chronic peritonitis distinguished from ascites by elevation of abdominal temperature.* Patient, male, thirty-five years, entered hospital March 25th, affected with abdominal effusion. Had been tapped a few days previous, and seven liters of clean yellow serum withdrawn. He was thin and extremely feeble; skin, dry and sallow (terreuse). Tumefaction of bowels quite marked, the subcutaneous veins slightly enlarged. The liquid moved about easily and palpation produced pain. The liver appeared small from percussion. The tongue was coated, no appetite, with a decided dislike to meat, never any vomiting, no hematemesis.

The disease was of about eight months duration. In consequence of this comparatively rapid development of digestive difficulty the question arose as to whether it arose from an ascites, from cirrhosis of the liver, chronic peritonitis, from chronic gastritis, or cancer of the stomach.

Temperature, March 29th, in axilla, 36.5° over the right hypochondrial region 36.1° (the normal temperature for this region is 35.5.°) That is, in the axilla there was a dimminution of temperature of 0.5°; whilst in the abdominal region there was an elevation of 0.8° above normal, but when compared with the temperature of the axilla, really an elevation of 0.8° + 0.5° or 1.3°. From this elevation M. Peter diagnosticated the difficulty to be not simple ascites, but chronic peritonitis, possibly carcinomatous.

In the early part of April the patient weakened considerably, ate only a few mouthfuls of beef-tea and milk, and that with nausea; he became exceedingly emaciated and the effusion diminished. Temperature on the 11th of April, axilla 36.6°, right hypochondria 36.7.° Died April 25th.

Autopsy revealed: liver small and hard, but not so small as was expected, weight 1250 grams. The stomach was remark-

able in apperance; it was small and abounded in ridges (ridé) and completely hidden under the liver. It was somewhat cylindrical in form, bulging out in the middle, and attached to the lower part was an irregular mass about the size of the thumb, of a violet red color, fibroid in character. This was the great omentum, retracted and binding the lower border of the stomach to the transverse colon; the small omentum bound in a similar way the stomach to the liver, and appeared to be equally thick and hard. The peritoneum of the whole region was also chronically inflamed.

The walls of the stomach were at least four times the normal thickness. An histological examination revealed a decided gastric sclerosis.

The ascites then did not arise from cirrhosis of the liver, but from chronic peritonitis, and the local elevation of temperature arose from the inflammation, and not from the ascites.

CASE II. *Chronic peritonitis of tubercular origin, distinguished from ascites by local temperature.* A woman, 33 years, entered the hospital April 4, 1877, with an extensive peritoneal effusion. The diagnosis accompanying her was, "Ascites from cirrhosis of the liver." M. Peter's diagnosis, however, was chronic peritonitis, probably of tubercular origin, without any affection of the liver. The diagnosis was based on the abdominal pain which was present at the commencement of the difficulty, associated with diarrhœa. The thermometer in the abdominal regions gave

April 8th, 36.7°, 1.2° above normal.
" 9th, 36.8°, 1.3° " "
" 10th, 37.4°, 1.9° " "
" 11th, 36.3°, 0.8° " "
" 12th, 36.5°, 1.0° " "
" 13th, 35.5°, normal.

The 14th, the patient died. The most remarkable feature about the temperature was that on the 12th the axilla gave only 34.5°, and on the 13th, 34.6°. That is, the temperature in the axilla had declined 2° from normal, whilst the temperature of the affected part was one degree higher than normal.

CASE III. *Cancerous peritonitis distinguished from ascites by local elevation of temperature.* Male patient entered hospital June 17 with an accompanying diagnosis of ascites from cirrhosis of liver. The liver appeared small and the spleen large. Gave a history of having vomited blood a year previous, and of having been treated for a difficulty of the stomach. From the time of entering the hospital up to the 20th of June the temperature remained, about axilla, 37°, normal. The effusion increased to such an extent that tapping became necessary, and with the increased effusion came an elevation of temperature, axilla, 38°; abdominal region, 37.8°, or 2.3° above normal.

July 6th, temperature in axilla, 38.3°.
" 6th, " abdominal region, 38.2°.
" 8th, " axilla, 37.8°.
" 8th, " abdominal region, 37.5°.

Just 2° above the temperature for that region.

The patient died August 5th. Autopsy revealed a stomach greatly distended with a cancerous development at the pyloric extremity. The walls near the pylorus were extremely thick. Numerous other pathological changes were present, but our object is simply to show the relation of the elevation of temperature to the cancerous development, as distinct from ascites.

CASE IV. *Chronic peritonitis distinguished from "nervous tympanitis" by local elevation of temperature.* A man of 48 years was presented to M. Peter by a physician of distinction as being the subject of nervous tympanitis. The abdomen was unusually distended, but presented no signs of fluctuation. M. Peter's diagnosis was chronic tubercular peritonitis. The temperature was as follows, taken at different times:

In axilla, 36.9°, over abdomen, 36.6°.
" 36.7°, " 37.1°.

These cases were taken by M. Peter from among a number which he has collected and intends to publish at large. His conclusions are that the simple ascites *never elevates the temperature* of the region; whilst chronic peritonitis *always elevates the temperature.*

A SIMPLE METHOD OF CURE FOR OZENA.—(*Gazetta Medica Italiana*, No. 5, 1880, p. 40.)

Dr. Gottestein considers ozena as a constant symptom of chronic coryza. He has no doubt that in consequence of the destruction of the glands, there is is produced a diminution and an alteration of the nasal secretion, which, drying rapidly, remains adherent to the mucous membrane in the form of crusts and undergoes a decomposition which produces the fetor. A limited atrophy of the mucous membrane is sufficient to give origin to the ozena. Adopting this view of ozena, it will be understood that there can be no question of a radical cure, since we cannot hope to establish the normal secretion in an atrophied membrane. We must then seek for a symptomatic cure which should be most simple and least inconvenient for the sufferer.

The author was led to this plan accidentally, while experimenting to see if ozena might be the result of an abnormal dilatation of the nasal fossæ, caused by atrophy of the inferior septa, causing, in consequence, a slowing of the current of inspired airs which is not sufficiently strong to favor the expulsion of the nasal secretions. The method by which the author has been able to obtain perfect results in the space of three months in fifteen case, of ozena is as follows:

He commences with a nasal douche, which removes the secretions from the nasal fossæ and allows him to recognize the state of the mucous membrane and the extent of its lesions. He then introduces into the diseased cavity, a tampon of cotton three to five centimeters in length, which should remain in place for the space of twenty-four hours.

An hour and a half or two hours after its application, patients notice that the nose becomes a little moist. If the tampon be then withdrawn, the mucous membrane is seen to be moist, without crusts or bad odor. An interval of twenty-four hours may elapse between two applications of the tampon. If both nasal fossæ are diseased, the tampon may be used alternately every twenty-four hours. The tampons probably restrict artificially the cavity, which increases the action of the column of inspired air, thus facilitating the expulsion of the secretions; and absorbing continually the matter excreted, prevent its drying up.

PRECOCITY.—M. G. Delaunay, in an interesting paper read before the Société de Biologie on December 27th, records his opinion that precocity is a sign of biological inferiority. As a proof of this, the author adduced the fact that the lower species developed more rapidly and were at the same time more precocious than those higher in the scale. Man is of all animals the longest in arriving at maturity, for his brain may increase up to fifty years of age. The lower races of men are more precocious than the higher, as is seen in the children of the Esquimoes, Negroes, Cochin Chinese, Japanese, Arabs, etc., who are, up to a certain age, more vigorous and more intellectual than small Europeans. Precociousness becomes less and less in proportion to the advance made by any race in civilization. Thus the French people grow less and less rapidly, and to such an extent is this the case, that the standard for recruits has been twice lowered since the beginning of the century; and the same observation applies with equal force to the Italians. In French society the nobles had, according to Broca, in olden times more capacious heads than the rest of the people; but M. Le Bon now shows that their skulls are at present inferior in capacity to those of scientific men and merchants. Women are more precocious than men, and in all domestic animals the female is formed sooner than the male. From eight to twelve years of age, a girl gains one pound a year on a boy, and in mixed schools they obtain the first places up to the age of twelve. The inferior tissues and organs develop before the higher ones, thus the brain is the slowest of all organs to develop. The anterior and the left superior portion, of the brain, which are the seat of the higher faculties, develop at a later period than the other parts. M. Delaunay concludes by stating that the precocity of organisms and organs is in inverse ratio to the extent of their evolution.—*Le Progrès Médical*, Jan. 3, 1880.

EXPERIMENTAL STUDY ON THE TREATMENT OF HEPATIC COLIC.—M. Laborde. (*Revue Méd.* Feb. 7, 1880, p. 184.)

The following is the author's *résumé* of the results obtained by his physiological experiments concerning hepatic colic:

(1.) The excretory bile canals are endowed with contractile power, and may consequently enter into a spasmodic state under

the influence of direct or indirect stimulation; this contractility is of the nature of that of the smooth, muscular fibers of organic life, and the existence of these fibers in the walls of the canals is demonstrated by histological anatomy, perfectly in accord here with experimental physiology. (2.) The mucous membrane of these canals is exceedingly sensitive, and shown under the action of excitants more or less intense by pain and by reflex phenomena, of which the immediate manifestation is spasm of the canals (3.) These phenomena are particularly determined by the presence and contact of foreign bodies (biliary calculi), whose spontaneous migration is thus rendered very difficult and is only accomplished after a greater or less length of time, with the peculiarity that these bodies are carried towards and into the gall-bladder. (4.) Anæsthetic and anti-spasmodic medicines are the most appropriate in the treatment of this morbid state, of which it is easy to realize experimentally the mechanical conditions. (5.) These medicines, notably morphine, chloroform and hydrate of chloral, act by exercising at once an anæsthetic and a paralyzing influence, from which results the cessation of the spasmodic state, the distension of the canals and the accumulation of bile, which acts upon the foreign body as a *vis a tergo* and pushes it toward the intestine. (6.) The combination of chlorhydrate of morphia with chloroform or with hydrate of chloral, that is, the simultaneous administration of these medicines, is the most powerful means of obtaining the desired results, namely: insensibility of the biliary canals, prevention of pain and the favorable influence upon the migration and rapid extrusion of the foreign bodies.

OBSERVATIONS ON THE DIGESTION OF MILK.—Dr. Brush divides milk into two distinct classes, according as it is the product of ruminant or non-ruminant animals. The milk of ruminants contains a variety of casein which coagulates into a hard mass under the action of the digestive ferment, or during lactic fermentation. From this fact the cause of the difficulty experienced by the human stomach in digesting the milk of ruminating animals is readily accounted for. The other variety of milk, viz., that afforded by the non-ruminant animals, does not, under

the action of rennet or acid, coagulate into the hard mass which is found in the cow's milk, but forms small granular or flocculent masses which are easily diffusible. This observation explains simply the advantages of koumyss prepared from cow's milk, over the milk itself, in the artificial feeding of children. In koumyss the casein is coagulated, and afterwards subdivided; it is then incapable of further coagulation under the action of any acid or ferment. It is also found that the amount of casein in milk is always in inverse proportion to the amount of sugar present, and the milk of runimants contains a smaller amount of sugar, but a larger amount of casein than that of the non-ruminants. The less sugar too that a given variety of milk contains the more rapidly does lactic fermentation take place, and consequent putrefaction follow. A milk containing a large amount of sugar, however, will undergo alcoholic fermentation, when placed under those conditions which would be the most favorable for lactic fermentation in a milk containing a small amount of sugar. The bearing of this observation is that putrefaction follows lactic fermentation, whereas alcoholic fermentation precludes to a certain extent any form of putrefaction. Thence the value of koumyss in the artificial feeding of children, for the sugar which it contains is all changed into alcohol and its associates, which at this period of life, when properly adminstered, is a true food.—*New York Medical Journal*, Sept., 1879.

CURE OF NASO-PHARYNGEAL POLYPI BY INTERSTITIAL INJECTIONS OF CHLORIDE OF ZINC.—(*Archivio Clinico Italiano*, No. 1, 1880, p. 8.)

Dr. Rochard reported to the *Soc. de Chirurg.* of Paris for Dr. Barthélemy of Toulon, a case of naso-pharyngeal polypus treated successfully with injections of chloride of zinc. The patient was a boy of fourteen years who entered the hospital at Toulon in a state of considerable anemia from abundant nasal hæmorrhages. The polypus had completely destroyed the sense of smell.

Dr. B. proposed several times a radical operation, but the boy refused. He then thought of injecting into the tumor chloride of zinc. As a preliminary, he perforated the palatine arch and took away the most salient portion of the tumor.

The following day he made the first injection of five drops of liquid chloride of zinc. The injections were renewed eight times in the space of four months; at the end of which time the patient was considerably improved and the tumor was almost entirely destroyed. Nevertheless, after some months, a slight relapse was observed in the superior maxilla.

Theophile Anger has twice employed in such cases, with relative success, injections of perchloride of iron, which he believes preferable to chloride of zinc.

TREATMENT OF URÆMIA BY INJECTIONS OF PILOCARPIN.—M. Leven read before the Biological Society of Paris, at its meeting on the 12th of October, an account of a girl, aged 16, who suffered from albuminuria, and who was suddenly seized with convulsions accompanied by complete anuria. Hydrochlorate of pilocarpin was injected subcutaneously, the third injection alone appearing to have any effect. The patient, who had previously been comatose, was then capable of being roused, and she perspired freely, whilst saliva was profusely excreted. The convulsions entirely ceased after the fourth injection, and the patient was cured. During the whole time of the uræmic symptoms the temperature oscillated between 37° and 38° C., whilst the saliva contained nearly ten per cent. of albumen. (*Le Progrès Mèdical*, 25th October, 1879).—*The Practitioner*, February, 1880.

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## SURGERY.

ABLATION OF A GOITRE; CURE IN SIX DAYS.—Dr. A. Reverdin, Geneva. (*Journal de Médecine*, March, 1880, p. 119.)

Occasions for extirpating goitres are rarely met with. Still, this difficult and dangerous operation has its partisans nowadays. It still remains a difficult operation, but its dangers are very greatly diminished by the rapidity of the phenomena of reparation by the present methods. On this account our readers will be interested by the following case of Dr. Reverdin, of Geneva.

Mdlle. X., 33 years of age, of good constitution, presented herself to me for the cure of a goitre which she had carried for

several years, and which had resisted all medical treatment. I found in the thyroid region an irregular tumor, very hard in certain points, soft and elastic in others; it was more developed to the right than to the left, and had notably displaced the larynx and trachea toward the right side. Its volume was that of a medium-sized apple.

The patient asked if an operation was possible. Possible, yes; but not absolutely indicated, if the danger attendant upon it was considered. The patient then, without hesitation, asked that the operation should be tried, and fixed the day herself. The operation was performed December 13. It had been agreed upon with the patient that chloroform should not be used. Everything was prepared to use Lister's method in the strictest manner.

The patient lay on her back; a round pillow placed under the neck; then, having rendered the part insensible with the ether spray an incision (4½ inches) 12 centimeters in length was made in the median line; with grooved director and bistoury, the tumor was gradually approached; arriving upon it, the difficulties commenced, large vessels, arteries and veins forming a veritable network in which one could only advance very slowly and prudently. Ligatures were difficult; the number of clamps used (25) twice proved insufficient, and vessels had to be tied to liberate them, and allow the operation to continue. The efforts were directed to the right; the finger passed toward the inferior part of the tumor was unable to lift it up. It was finally accomplished with great difficulty, and by the use of many ligatures. The second part of the operation was facilitated by the laxness of the tissue situated under the tumor; however, towards the upper part, many more ligatures had to be employed. More than eighty ligatures were used, the catgut being excellent, and never breaking. The tumor was entirely extirpated. After a careful cleansing, and repeated with the strong solution, a caoutchouc drainage tube, the size of the finger, and (2½ inches) 7 or 8 centimeters long, was placed in lower angle of the wound, that is, behind the sternal notch; ten sutures of catgut closed exactly the rest of the wound. A large compress covered the neck as far back as the ears, and to the shoulders and chest. Muslin bandages kept it in place, and formed a sort of cuirass, preventing

any movement. The operation, including the dressing, lasted two hours and a half. The patient had admirable patience and courage, which singularly facilitated the surgeon's task. A little difficulty in swallowing, and a little smarting of the wound, were the only pains of which the patient complained the first two days. The dressing was renewed the day after; the wound looked well. The third day the drainage tube was removed; a large blood-clot entirely filled the opening, and was left undisturbed; no injection was made, the dressing simply being renewed. The patient swallowed better, especially food somewhat solid. The sixth day the dressing was removed, reunion being perfect; there was absolutely no discharge from within; the clot was organized, and a large granulation alone marked the place occupied by the drainage tube for three days. Some strips of diachylon were placed for safety over the region.

In six days, then, this cavity, in which remained a considerable number of ligatures, with a canal kept open for three days by a large trainage tube, was absolutely obliterated. There was never the slightest swelling; never pain, except slight difficulty in deglutition; a temperature and pulse nearly always normal, the highest point being 38.3° C. (100.9° F.), pulse 96, the second day, in the evening; save on this day, the temperature was never up to 38° C. (100.4° F.).

As a final result, there remains only a small, red, thread-like line, with dots to right and left at the point of sutures. The author has no comments to make upon the case, except to say that it was difficult, and in spite of excellent assistance, lasted two hours and a half, and that without Lister's method a similar result could not have been hoped for.

THE PORRO OPERATION.—(*Bulletin de l'Académie de Médecine*, No. 10, 1880.)

M. J. Lucas-Championnière presented two women to the Academy who had had successful Porro operations performed upon them. M. Lucas-Championnière has operated four times, with successful results to the mother in two, and four living children. These four cases of extremely narrow pelvis have presented themselves within two months. All the women had

rachitic pelves, with a conjugate diameter of (about 2⅓ inches) about 6 centimeters or less.

The first, Eliza A., aged twenty-seven, primipara, entered the Maternity on October 27, 1879, presenting a type of rachitism; her height was (49 inches) 1.25 meters. A first measurement of the pelvis gave a sacro-sub-pubic diameter of (3 inches) 0.078 m. A second measurement gave 0.073 m. M. Lucas-Championnière kept the woman under surveillance at the maternity during the last three weeks of her pregnancy; he had her examined by M. Tarnier, who approved of his project of intervention, being very much in favor of the Porro operation. On the morning of the 19th, labor began, without rupture of the bag of waters. Slight sanguineous discharge; disappearance of the neck. The operation was decided upon for the afternoon. At half-past three, all the precautions being taken, the operation was commenced. A large incision in the median line of (about 6 inches) 15 or 16 centimeters, passing a little above the umbilicus. On incision of the uterus, a frightful flow of blood occurred. The section finished, a living female, weighing (5 lbs.) 2 kil. 700 grams, was extracted by the feet, then the placenta, and with forceps the uterus was drawn forwards and two pins passed through the inferior segment; beneath, an iron wire; between the two, a second wire, which were tightened with Cintral's ligator. The uterus and ovaries were then removed. Six deep and one superficial sutures of the abdominal walls; per-chloride of iron applied to the stump, and complete Lister dressing. Duration of operation, three-quarters of an hour. The temperature never rose above 38.9° C.—that was the evening of the 21st. The sutures were removed successively until the 28th, and then the pins. The pedicle came away the thirteenth day. Dec. 20th, complete cicatrization. About six weeks after the operation, the patient got up completely cured. She presents to-day a perfect state of the abdomen, with a slight excavation. The touch reveals a large and mobile cervix. She has even had sexual connection already, without accident, the 10th of February. The child of this woman having been taken to the church for baptism the third day, after having been very lively, was chilled in the severe cold, became sick and died in thirteen days.

The second patient, Adele I., entered the Necker hospital on December 30. She was twenty-three years of age, and also rachitic; height, (50 inches) 1.30 m.; sacro-sub-pubic diameter, 0.067 m.—that is, a sacro pubic diameter of (2 inches) 5 centimeters. She had been in labor thirty-six hours, and the waters had been escaping for twenty-four hours. M. Lucas-Championnière operated December 30th, at 9 p. m., after having given chloroform for several hours, to calm an insupportable agitation. At this time the patient was in full labor, with a dilatation the size of the palm of the hand. An incision 16 centimeters long was made in the abdominal wall, commencing just above the umbilicus, and descending not quite so low as in the preceding case. The uterus was opened with considerable hæmorrhage. The child was extracted, breathed well, and weighed more than ($6\frac{3}{5}$ lbs.) 3 kilograms. Pins, wires and deep sutures as before; pedicle placed in lower angle of wound, much higher up than in the former case; Lister's dressing. No accident followed, save an extraordinary acceleration of the respirations, 55 in the minute, at the end of twenty-four hours. She never attained so much as 38° C. (100° F.). Dressing changed first the fifth day, then on the ninth day. At the second dressing the pedicle had fallen; at the ninth dressing, at the end of January, there remained but a very superficial ulceration. She began to get up in February, and for a long time has been in good health. The child, confided to a nurse, is doing finely. In this woman the union is so perfect that one can see but few traces of the operation, though it is so recent.

Another woman was operated upon the 3d of December; she died on the 5th, thirty-six hours after the operation. The child lives.

A fourth case at the Cochin hospital was operated on the 17th of January, 1880. Sacro-pubic diameter of (1.9 inches) 49 millimeters. Very well at first, she had a violent nervous attack after four hours, and died at the end of twenty-three hours. The child lived three days.

The author observed that all those cases of pelvis with a sacro-pubic diameter of 6 centimeters or less, only comprise women exposed to an enormous mortality under cephalotripsy. Cases

which should not be confounded with those where the antero-posterior diameter approaches (2¾ inches) 7 centimeters.

M. Lucas-Championnière does not yet regard the Porro operation, as some have done, as worthy of replacing in all cases the Cæsarean operation.

The cause of death, as in hysterotomy, is inherent to resection of the uterus and its constriction, and the accidents observed are probably of a reflex order, due to shock to the nerves of the broad ligament. Consequently, except great modifications are made in the process, the operation remains one of menacing gravity. Up to the present time, no indications as to the mode of operating have been given. The author believes it easy to demonstrate, according to his own observations, that the abdominal incision should be made much higher than heretofore; one is much more sure of being able to make the dressing aseptic, in getting away from the pubis. This he obtained perfectly in the second case, and nearly so in the first one. The uterus is always incised too low. It would very probably be less grave if only a portion of moderate extent were cut away. The most perfect antiseptic precautions should be taken. It is probably more advantageous to the woman to interfere before labor. With antiseptic precautions, a specially clean locality is not necessary, as shown by the cure of his last patient in a badly-aired room, which had even served to isolate patients with contagious disorders. The operation requires isolation, warmth, repose, good care, incessant antiseptic precautions, and sufficient comforts; also skilled assistants.

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## GYNÆCOLOGY.

DISPLACEMENTS OF THE UTERUS—A NEW THEORY OF THEIR MECHANISM AND TREATMENT, by Dr. G. Cowan, Kentucky, is communicated to the *American Practitioner*, 1879, and abstracted in No. 2 of *Centralblatt*, 1880. The author describes the different theories of the text-books respecting the uterine supports, and the origin of displacements by distension, relaxation, or shrinking of these supports, and concludes, on the ground of anatomical and logical investigations, that neither the

vagina broad and round ligaments nor the utero-vesical nor utero-sacral ligaments are to be looked upon as the primary supports of the uterus. For it can be proved experimentally that they are not put on the stretch until displacement has already occurred, and therefore when the uterus is in its normal position they are not tight, and accordingly cannot support the uterus. All these ligaments do is to retain the uterus in its proper axis. The power of support the author now finds in the direction of the intra-abdominal pressure, which, according to him, acts as follows: The intestines glide upon three planes in an arched line downwards and backwards—namely, first, the anterior surface of the 9th, 10th, 11th, and 12th dorsal vertebræ, the 1st, 2d, and 3d sacral vertebræ, and the adjoining lateral surfaces of the abdominal cavity; second, the lower anterior and inner surface of the abdominal cavity, and the inner surface of the symphysis and ossa pubis; third, the inner surface of the rami ischii, the anterior and upper surface of the perineum, and the adjoining surfaces of the vagina and of the rectum, to which, by the coccyx and sacrum, an upwards and backwards concave direction is given. The mobile abdominal viscera glide now from the first plane downwards and forwards upon the fundus uteri and bladder; from thence the pressure passes by the second surface downwards and backwards on the third plane, and from this directly upwards and somewhat backwards upon the uterus and its ligaments, which is therefore compressed by hydrostatic pressure from before and under against the rectum, and is kept in a floating position. The uterus is to be compared to the keystone of a reversed arch, but with the thick end of the stone upwards. The bowels press now upon the arched bladder; the uterus is pear-shaped, and is held down anteriorly by the vesico-uterine ligaments, together with the ligamenta lata and the anterior and posterior duplicatures of peritoneum kept in the axis of the pelvic inlet, and can escape from this pressure directed upon it forwards and under only in the upwards and forwards direction. Were the small end of the keystone directed upwards, as it would be in a reversed arch, this same pressure would displace the uterus downwards.

On this ingenious theory the author briefly bases his treatment. In conjunction with pessaries made according to Hodge's princi-

ple, he proposes in the case of displacements, mostly in multiparæ with relaxed abdominal walls, to replace the absent second plane, the tight anterior abdominal wall, by means of a tight, accurately-fitting binder, which in every displacement, and immediately after every delivery, is to be put on and worn until the abdominal wall has again recovered its tone. The relief which at any rate most women with uterine displacements feel in wearing such an abdominal binder, the author explains by pressing up of the uterus according to his theory, not, as hitherto, by the removal of the pressure of the bowels on the irregularly situated uterus.

THE DIAGNOSIS AND TREATMENT OF OBSTETRIC CASES BY EXTERNAL MANIPULATION, BY DR. PAUL MUNDÉ. Second Article. (*American Journal of Obstetrics*, October, 1879.)—We regret much to find that the brief note we added to our short abstract of the first part of this paper in the December retrospect has hurt the author's feelings. We have carefully re-read the paper, and are willing to confess we were somewhat mistaken in our idea of the object aimed at by Dr. Mundé, which we find was less to instruct obstetricians than to spread a knowledge of this useful branch of gynæcology among the profession. As we regard the papers to be extremely well calculated to effect this object, we now include some parts of the first paper not given fully enough in our first reference, along with an abstract of the second part of the paper.—[A. M.] The external method of manipulation is described, for diagnostic purposes, under four heads—inspection, palpation, percussion, and auscultation, and the information gained by each of these is minutely discussed. Under the head of inspection the author especially mentions the appearance, originally pointed out by Bandl, recognizable when there is some obstacle to the passage of the head, as in contracted pelvis, namely, a transverse furrow about midway between the umbilicus and pubis, due to the futile concentric contractions of the uterine body, when the cervix is jammed against the pelvic brim by the presenting part. He says he has himself seen the same phenomenon in excessive pelvic obliquity with consequent anteversion of the uterus. Under palpation Dr. Mundé advises that not the

tips of the fingers merely should be used, but that the palmar surfaces of all the fingers should be gently but firmly pressed into the abdominal parietes. By a "pawing" movement we get an idea of the general configuration of the uterus; by pressing deeply behind the uterus from above we ascertain the period of gestation; by moving the hands along side by side we may feel the mobile portions of the fœtus; while by grasping the hypogastric region with the whole hand the presenting part, whether head or breech, is known. External ballottement will determine the amount of mobility of the fœtus. Any abnormality of the uterus is also often easily detected thus, *e.g.*, subperitoneal fibroid tumors, uterus bicornis, etc. The regular intermittent contractions and relaxations of the uterus, described by Braxton Hicks as a sign of pregnancy, is also a late outcome of this practice of palpation. The movements of the fœtus also serve to show the undoubted presence and life of the child, the probable quantity of amniotic fluid, and the approximate size and strength of the child. Rules are also given for guiding us to a knowledge of the presentation in a given case, whether head, breech, or transverse, and how the presence of twins may be predicted. The death of the fœtus, the character of the uterine contractions, hydrocephalus, rupture of the uterus, and extra-uterine fœtation, may all be made known in time for treatment when skill is acquired in the application of the method. From percussion we are enabled only to confirm information obtained by the other modes of procedure. From auscultation important data may be furnished, and of these the one of most value is the pulsation of the fœtal heart, which has been heard in some cases as early as the fourteenth week of utero-gestation. The author recommends the method of immediate auscultation as giving more certain signs of the life or death of the fœtus. Certain important aids to the diagnosis of the position and presentation of the fœtus are also demonstrated to be obtainable from auscultation. In attempting to predict the sex of the fœtus from the number of its heart-beats, the author suggests that we should remember that several modifying influences have to be taken into consideration—as the period since food was taken, the fœtal pulsations being more rapid after meals —and the size of the child—the larger the child the fewer pulsa-

tions of its heart, and conversely, whatever be its sex. In a paper by Paul Budin and Chaignot, it is stated that there is no relation whatever between the weight, cardiac pulsations, and sex of the fœtus. The general opinion of the later observers amounts to the possibility of a "shrewd guess" being made as to the sex of a coming child, but nothing more, and it would be unwise to hazard an opinion in any given case. Various opinions regarding the causation of the funic souffle are mentioned, one holding that it is due to pressure on the cord from twisting round the body, another that it is due to organic valvular disease of the fœtal heart, a third that it results from rapid influx of blood from the small arteries into the disproportionately large cavities of the heart, while according to Schroeder it originates in the arteries of the cord at their junction with the body of the fœtus. Another theory would have it generated in the umbilical vein. The practical deduction which the author draws from a consideration of all the possible theories is, that it indicates obstruction in some form to the fœtal circulation. and he calls attention to the necessity of carefully watching both the fœtal heart and the funic souffle, as any irregularity or growing indistinctness of the fœtal heart, coupled with the persistency and increasing force of the souffle, points to some cause endangering the life of the child.

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## Otology and Ophthalmology.

Communication between the Endo-and Peri-lymphatic Cavities of the Labyrinth and Extra-labyrinthine Intracranial Cavities.—Weber-Liel: *Virchow's Archiv*, Bd. 77, 1879.—The uncertainty existing in regard to the communications of the two aqueducts of the labyrinth led Weber-Liel to attempt the solution of the question by what he calls the method by aspiration, as well as the old method by injection, and he seems to have met with perfect success in demonstrating that the aquæductus vestibuli is an endo-lymphatic passage in direct and free communication with a sac lying beneath the dura mater on the posterior aspect of the petrous bone, and that the aquæductus cochleæ is a peri-lymphatic passage in free communication with

the arachnoid cavity. The sac on the posterior aspect of the petrous bone, saccus intra-duralis or endo-lymphaticus, is of connective tissue, and enclosed in the tissue of the dura mater; it is from 12 to 18 mm. long and from 5 to 9 mm. broad in its normal condition, but is much diminished by pathological changes in the tissues of the dura mater. In sixty preparations it was found in every one, and may be regarded, therefore, as normal. On opening it the interior was lined with flat epithelium, but the question of whether it is in reality a serous sac remains to be settled. From this sac a membranous tube leads directly to the vestibule. To demonstrate that this tube communicated with the endo-lymphatic cavities of the labyrinth, Weber-Liel opened the membranous superior semi-circular canal, attached a glass tube to it, and connected this with an aspirator. The saccus intra-duralis was now laid open and filled with "Beale's blue," and suction exerted by the aspirator. The different steps of the operation, with the necessary cautions, are given in full. It was found that by this method both the sacculus of the labyrinth, all the membranous canals, and the ductus cochlearis, were filled with the coloring matter. The very free communication between the saccus intra-duralis and the endo-lymphatic cavities is also shown by the simple experiment of opening the superior semicircular canal so that the endo-lymph is exposed to view, and then pressing or using suction upon the sac, when the endo-lymph will be forced up through the opening in the canal or drawn back out of sight, showing both that the communication is very free, and also that during life any pressure or relaxation in the walls of the sac would influence the tension of the labyrinth itself. On the edges of this sac runs the vena aquæductus vestibuli, and the walls of the sac are surrounded by a network of vessels. To determine the connection of the peri-lymphatic cavities of the labyrinth two methods were used—injection into the arachnoid cavity, and aspiration from that cavity. By the former method the injected fluid entered the scala tympani of the cochlea, and also exuded through the perforated membrane of the fenestra rotunda; but as some of the fluid escaped between the dura and pia mater, it was uncertain whether it had entered the cochlea from the arachnoid cavity, and aspiration was then used, as in

the previous experiments. The whole anterior part of the preparation was immersed in the coloring matter, and suction on the opened semicircular canal exerted, with the result of depositing the coloring matter throughout the peri-lymphatic spaces of the labyrinth, but without coloring the porus acousticus internus, thus proving that the connection could not be that canal. The same experiment was tried by first filling the entrance of the aquæductus cochleæ with the blue, and here also the peri-lymphatic spaces only were filled with the coloring matter. The freedom of the communication through the cochlear aqueduct was also shown by filling its orifice with fluid, and then, by condensing and rarefying the air of the meatus, this fluid could be drawn inward or pressed outward. These experiments of Weber-Liel show, then, that the aquæductus vestibuli is a passage communicating and retaining the equilibrium between the endo-lymphatic cavities of the labyrinth and a sac situated within the dura mater, while the aquæductus cochleæ is a passage communicating and retaining the equilibrium between the peri-lymphatic cavities of the labyrinth and the sub-arachnoid cavity. The peculiar sense of pressure in the head (*Eingenommenheit*) experienced with many affections of the ear he would, in some cases, explain by the assumption that the labyrinthine fluids are forced by pressure through these passages into the cranial cavity, and thus exert pressure upon the brain ; and the aural symptoms accompanying some diseases within the cranium he would explain in the opposite way, these passages allowing the fluid to be forced from the arachnoid cavity into the labyrinth. The whole series of experiments and their results are extremely interesting.

Experiments on the Inoculation of the Cornea, Iris, and Conjunctiva with Tubercle.—Hænsell, (Græfe's *Archiv*, XXV. 4, p. 1), has studied the changes produced in the cornea, iris, and conjunctiva of rabbits and guinea-pigs by inoculation with the fresh pus from tuberculous joints. This substance, injected into the anterior chamber in an aseptic condition, becomes absorbed in the course of a week. Then, after a period of incubation lasting twenty to thirty days, sudden swelling and hyperæmia of the iris, accompanied by ciliary injection, set in,

soon after which small gray points can be seen, which after some time become confluent, press upon, bulge forward, and eventually perforate the cornea, and finally undergo caseous degeneration. The whole process described takes three months in rabbits, in guinea-pigs only about half that time. Inoculation of the cornea directly by interstitial injection of the same pus produces, after fifteen to twenty-three days, severe ulceration with excessive development of blood-vessels, the whole being not unlike a pannus crassus as it occurs in man. Similar results to those which follow injection into the anterior chamber are obtained when the conjunctiva is selected for inoculation. In order to test whether the tubercles formed in the iris and conjunctiva possessed the same power of producing a general tuberculosis as other tubercular substances, they were introduced in two cases into the abdominal cavity, and in these the post-mortem examination, after three months, showed a miliary tuberculosis of all the internal organs. Hænsell has found, with Cohnheim, that any other substance introduced into the anterior chamber is incapable of producing the same effect; on the other hand, it was found possible to infect one animal from the artificially produced iris tubercles of another. In all cases of tubercle of the iris which have been observed in man the same course of events has been noted as in the inoculated tubercle of these animals, only the time taken for complete development is longer. Hænsell considers that the fact of there being a definite period of incubation, as well as that the organisms which Klebs looks upon as being the principal agents in the production of tubercle are constantly found in these neoplasms of the iris, shows that they constitute a truly zymotic disease.

ON THE DISTURBANCE OF VISION CAUSED BY INJURIES TO THE SKULL.—Dr. Berlin has collected a number of cases which have come under the observation of himself and others, in which amaurosis has followed severe blows on the head. In an interesting paper, read before the Ophthalmological Society at Heidelberg, he has given his views on this subject. These may briefly be summed up as follows: The amaurosis is in by far the greatest number of cases unilateral; it arises suddenly at the time of,

or immediately after the injury, and is generally complete and incurable. The injuries giving rise to the amaurosis are almost always severe, such, indeed, as generally give rise to loss of consciousness at the time, and may often be supposed to have caused fracture. The frequency of fracture of the roof of the orbit is very great, as may be seen from the statistics of Hölder. Of 126 cases of fracture of the base of the skull examined by him, 88 involved the base, in eighty, or ninety per cent., of which the roof of the skull was fractured. In fifty-four, or sixty per cent., the line of fracture passed through the walls of the foramen opticum, and this independent of the direction of the force producing the fracture. In the 54 fractures of the optic foramen Hölder found extravasation of blood into the sheath of the optic nerve 42 times. No extravasation into the sheath of the nerve was found in any case when the fracture did not involve the foramen. Taking into consideration, then, the severe nature of the injuries causing amaurosis, and the statistics of Hölder, Berlin is of opinion that the amaurosis in such cases is generally the result of injury to the optic nerve from fracture through the foramen.

Removal of a Foreign Body from the Vitreous Chamber by means of a Magnet.—Hirschberg removed successfully a piece of iron 3 mm. long and 2 mm. broad from the vitreous chamber with an electro-magnet which he had constructed for the purpose. An incision was made in the sclerotic near where the foreign body was seen with the ophthalmoscope to lie. The magnet used can attract pieces of iron of 1 to 5 mm. in length from a distance of 2 to 4 mm. when placed free in vitreous humor. He concludes his account of the case with the following remarks on this method of operating: "The asserted possibility of removing with a magnet a piece of iron embedded in the cornea, as we see them daily in iron-workers, and which are so easily removed by mechanical means, must be looked upon as a fable, a counterpart to the tale in the Arabian Nights, of the magnetic island which attracted the nails from the planks of passing ships. For foreign bodies in the anterior chamber, the magnet is as a rule, superfluous and impractical; as soon as the aqueous humor escapes, and the piece of iron is pressed up against the posterior

surface of the cornea, it can easily be extracted with forceps, whilst extraction with a magnet is exceedingly difficult, as will be found by experimenting on rabbits. The triumphant cases for the magnet are only those in which, as in our case, the piece of iron has recently found its way into the eye and lies free in the vitreous; in such cases it could only rarely be extracted with forceps or scoop without producing lasting injury to the eye."—*Centralblatt f. Augenh.*, December, 1879.

ON THE SENSIBILITY OF THE ORGAN OF HEARING.—W. Kohlrausch. (Wiedemann's *Annalen*, 1879, No. 6; *Phil. Mag.*, No. 48, September.) With the aid of a toothed wheel working agaist a disk of metal or pastboard, Savart found that two impulses can make upon the ear the impression of a comparable tone. Exner (Pfluger's *Archiv*, XIII. p. 228), by means of tuning-forks vibrating before spherical resonators, finds that seventeen impulses—Pfaundler (*Wiener Berichte*, LXXVI. p. 572, 1877), by experiments on holed sirens and reflection-tones, that only two impulses—and Auerbach (Wiedemann's *Annalen*, VI. p. 591, 1879), that about twenty vibrations are necessary for the production of a tone in the physiological sense, the tone being determined to within the interval 100 : 101. Less sharply defined tones can be produced in a simple manner by but two impulses. Two fingers of the hand being held together so that the ends of the finger-nails are on a level, a blow is given therewith somewhat obliquely upon a table or board, the proper tone of which is deadened by loading it with books or some other heavy substances. It will be readily felt that the two fingers rarely strike simultaneously, and by a little attention there will be heard, with the noise of the blow, a very hollow tone of a pitch, which changes *per saltum* according to the position of the fingers, but which, by practice, can be approximately had at command. Similar tones are obtained by running the finger-nails over short lengths of ribbed paper.

A RARE FORM OF OPACITY OF THE CORNEA.—In this paper (Knapp's *Archiv*, IX. 2, p. 184) Dr. Nettleship gives an excellent description of a traverse opacity, which occurs rarely and under

circumstances still imperfectly understood, in the cornea of old people. The description given differs slightly from that given by Græfe in one of his well-known papers on glaucoma. Whereas Græfe seems always to have observed the opacity to begin in two separate portions at the inner and outer margins of that part of the cornea which is uncovered by the lids, and gradually extend until they met over the center of the pupil, Nettleship has seen the process begin as frequently in the center, and is of opinion that the margins of the cornea always remain free. Further, Græfe has associated these cases constantly, sooner or later, with secondary glaucoma, whilst Nettleship believes that they are sometimes primary, uncomplicated corneal changes. A number of valuable suggestions are thrown out as to the possible etiology of this curious condition. These are preceded by a careful examination of all the causes which might be supposed to influence its occurrence in any way. The opinion of the author seems to be that some constitutional or trophic conditions favor the gradual alteration in the most exposed part of the cornea, where the opacity is invariably situated. The treatment advocated and adopted with success is the scraping away of the opacity from the center of the pupil. A recurrence after this operation does not appear to take place. It will be remembered that V. Græfe recommended iridectomy.

On the Chorda Tympani Nerve.—Horatio B. Bigelow. (*Archives of Medicine*, June, 1879.) The author presents the result of an anatomical and physiological investigation of the chorda tympani nerve in rabbits and dogs, instituted during the spring and summer of 1875. He is led to take issue with the views entertained by Prof. Sappey (*Traité d'Anatomie descriptive*) respecting the course and function of this nerve. He says: "To me there seems to be no doubt that the special sensory function of the facial filaments is derived from the nerve-cells in the intumescentia gangliformis found upon the nerve of Wrisberg in the aquæductus Fallopii. The chorda tympani sends branches to the lingual just after becoming joined to it in the common sheath between the pterygoid muscles. It is so well nigh impossible to separate these connecting filaments, and so closely

apposed to each other are the two trunks, that I am perfectly aware of the unsatisfactory nature of the dissections; but yet, by means of the glass, I was able to identify so many branches of the chorda tympani passing to the lingual, and so satisfactorily, for a considerable distance, demonstrated the integrity of each nerve, that I feel convinced that at no very distant day it will be proven conclusively that these nerves are not joined fibril to fibril, but that they pass together in one sheath, the lingual receiving branches from the chorda tympani, which, in turn, is made sensory through *the ganglion upon the nerve of Wrisberg.*"—*American Journal of Otology*, Vol. II, No. 1.

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## THERAPEUTICS.

THE TOPICAL USES OF ERGOT.—Dr. W. C. Dabney, in an article in the *American Journal of the Medical Sciences*, July, 1879, calls attention to the local use of ergot in various affections. In chronic conjunctivitis, in which the vessels are enlarged and tortuous, he advises the frequent cleansing of the eye with warm water, and the instillation after each washing of a few drops of the following solution: Ergot (solid extract) gr. x, glycerin ℥i; water to make ℥i. This treatment is less applicable in cases in which there is much pain or intolerance of light. In pterygium the same solution may be used with advantage. In cases of pharyngitis, when the vessels are enlarged and tortuous and there is not much secretion, and in hypertrophy of the tonsils the following solution should be painted on the parts twice a day: Ergotin, gr. xx; tincture of iodine, ℥i; glycerin to make ℥i. In cases of cervical metritis, ergot and belladonna may be combined in the following proportions to form pessaries: Ergotin (or solid extract of ergot), gr. xx; extract of belladonna, gr. ii; cocoa butter, q. s., mix and make into six pessaries; one to be inserted into the vagina every night, after using the hot douche. In warm weather these remedies may be dissolved in glycerin and water, as in this formula: Ergotin, gr. iii; extract of belladonna, gr. vi; water and glycerin, āā ℥iv; mix. A pledget of cotton is to be saturated with this solution,

and inserted into the vagina at bed-time, after the hot douche; the cotton should be removed in the morning. Dr. S. Eldridge mentions in the *New York Medical Journal*, October, 1879, several other affections in which the local application of ergot is beneficial. He treated an obstinate case of acne rosacea, occurring on the nose of a young lady, by the use of ergotin, applied during the night upon lint; in three weeks there was much improvement, and in six months no trace of the disease was visible. In another case of the same affection, due to drinking, he injected two or three minims of the following preparation of ergotin into the substance of the skin at intervals of three days, having first softened the tissues as much as possible by several days' continuous poulticing: Ergotin, gr. xv; glycerin, gr. xxx; water, ℥ii; thoroughly triturate and strain. No suppuration occurred. Thirty injections were made, and in four months the nose was almost natural in appearance. Dr. Eldridge also gives details of some cases of gonorrhœa and granular urethritis which he has treated by ergotin locally, with marked success. The remedy may be introduced into the urethra either by means of the ointment syringe or rubbed into the meshes of a cylindrical hollow lamp-wick, which is supported by a small bougie passed into its center, this swab being allowed to remain in the urethra for about half an hour. In an old standing case of otitis media, accompanied by destruction of the membrana tympani, large granulations and profuse discharge, ergotin was applied directly with a camel's hair pencil, after having been diluted with sufficient glycerin to make it flow easily; the result was satisfactory, the granulations having shrunk rapidly, while the discharge disappeared and the sensitiveness abated. The author also suggests that in eczema, vaginal leucorrhœa and nasal catarrh the topical application of ergotin should prove of value.—*The London Medical Record*, January 15, 1880.

## ANNOUNCEMENTS FOR THE MONTH.

### SOCIETY MEETINGS.

Chicago Medical Society—Mondays, June 7 and 21.

West Chicago Medical Society—Mondays, June 14 and 28.

### CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.

Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.

Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.

Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard; 3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Quine.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.

Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.

Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.

Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.

Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.

Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.